



# **Bay-Delta Water Quality Control Plan Update and Proposed Final Substitute Environmental Document**



**Board Meeting  
August 21, 2018 – Item 4  
State Water Resources Control Board**



# Meeting to Consider

- **Public Comments**
- **Adoption of Final SED**
- **Adoption of Amendments**
- **Final decision to be made at a continued meeting**

# Today's Presentation

- Bay-Delta Plan and Update
- Proposed Amendments
- Comments & Responses
- Environmental & Economic Effects
- Staff Recommendation
- Next Steps

# Bay-Delta Water Quality Control Plan

- Ensure protection of beneficial uses
- Water quality objectives
- Program of implementation
- State Water Board adopts Bay-Delta Plan
  - Water resource of statewide importance
  - Water right and water quality authority

# Bay-Delta Plan & Update

## 1995 - 2018

1995



Major  
Amendments

2009



Periodic  
Review

2012



Proposed  
Amendments

Draft SED

Comment  
Period

2016



Modified  
Proposed  
Amendments

Recirculated  
Draft SED

Begin Comment  
Period

2017



Close  
Comment  
Period

Review &  
Respond to  
Comments

2018



Proposed  
Final SED

Modified  
Proposed  
Amendments

Comment  
Period

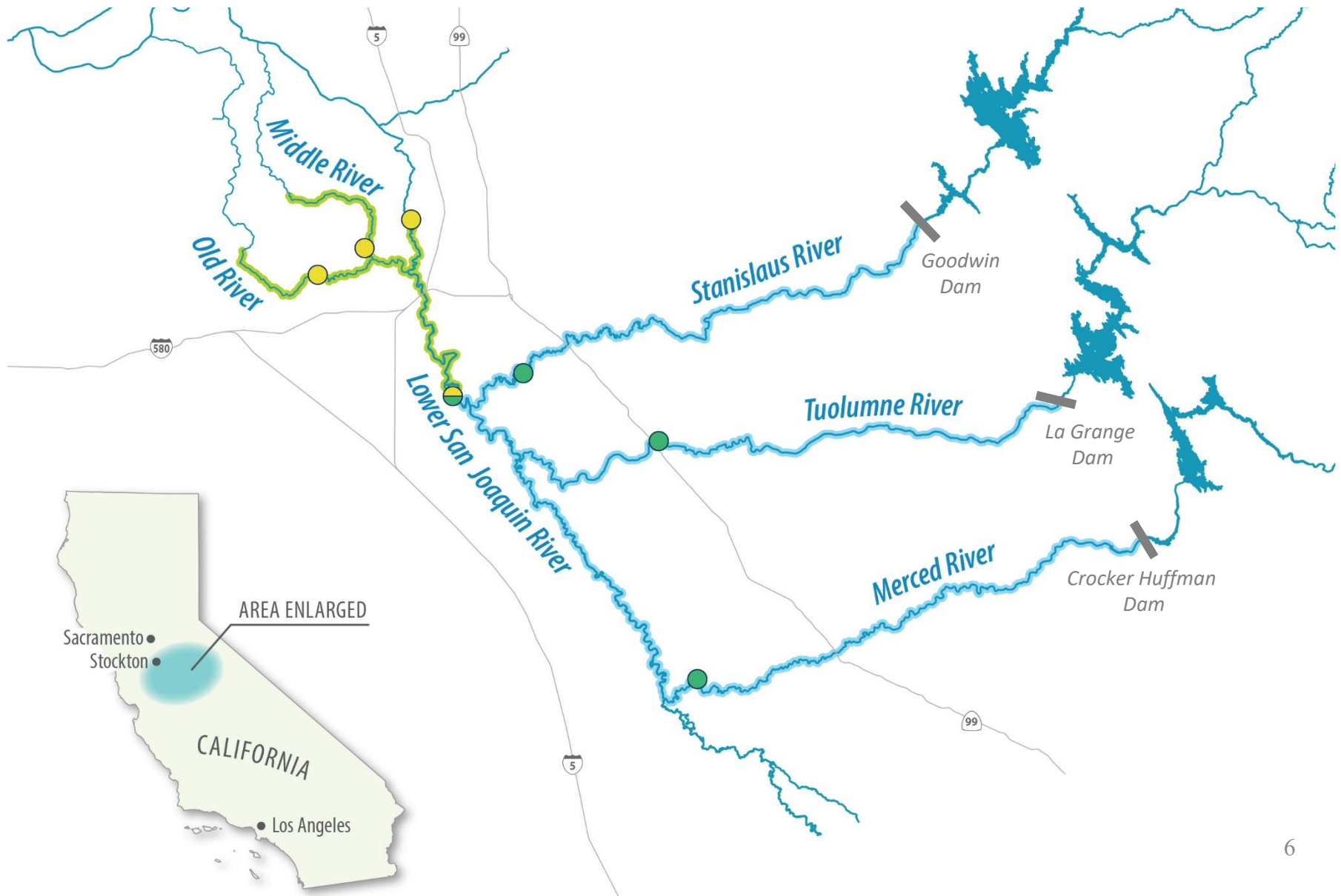
2018



Consider  
Public  
Comment

Adoption of  
Proposed  
Final SED &  
Amendments

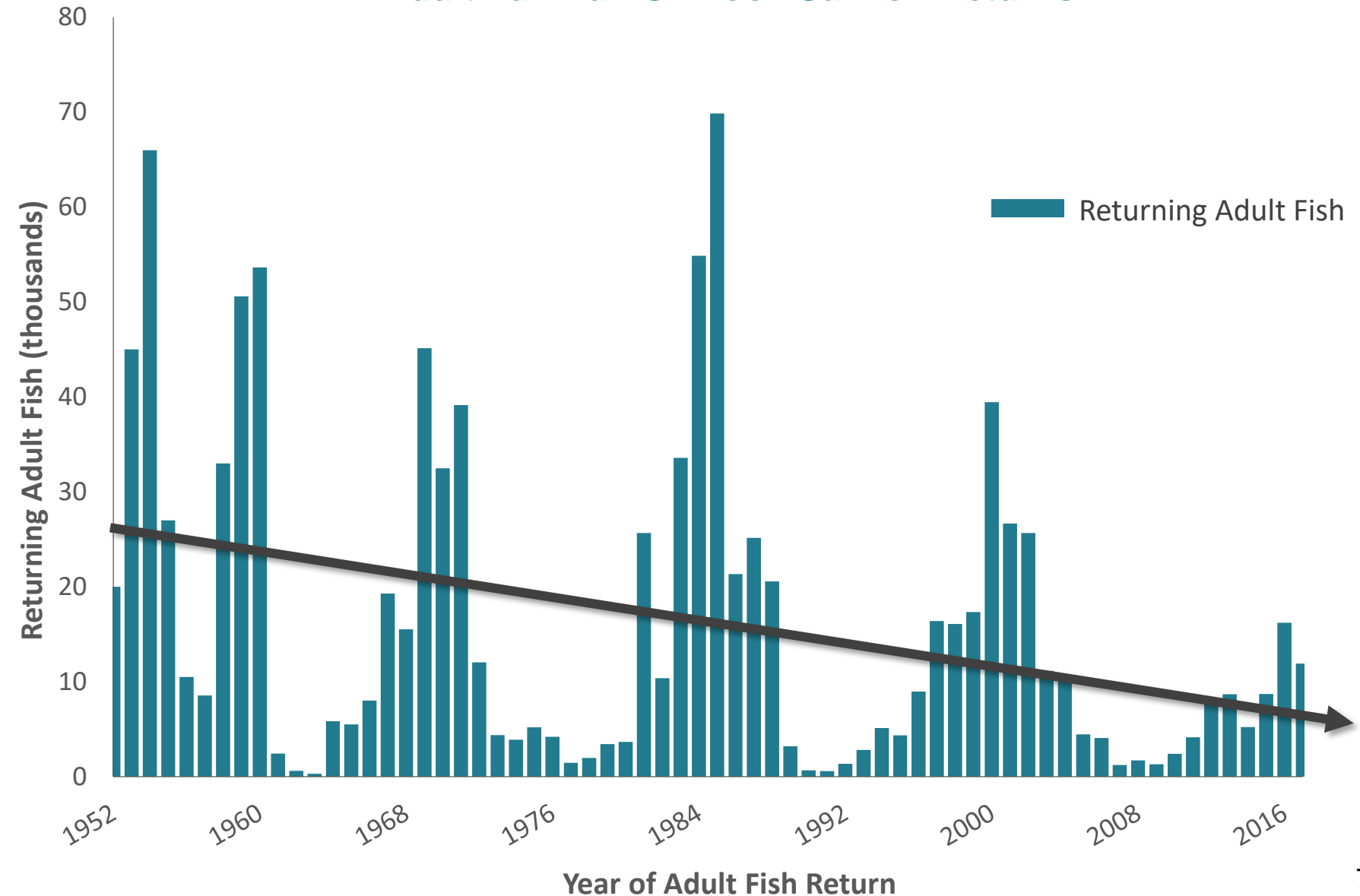
# Proposed Bay-Delta Plan Amendments



# Why Flow Objectives?

Proposed Amendments

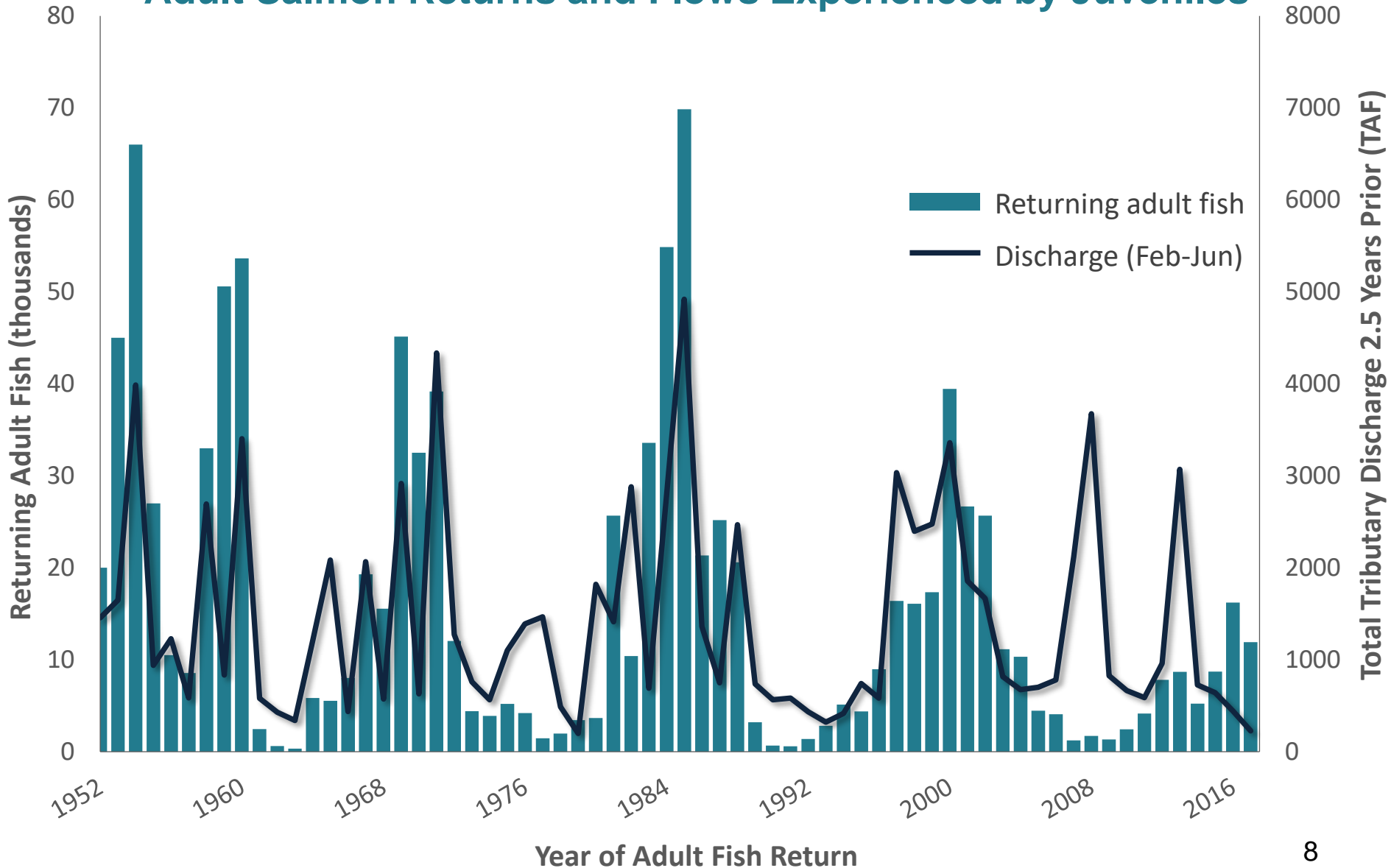
## Adult Fall Run Chinook Salmon Returns



# Why Flow Objectives?

Proposed Amendments

## Adult Salmon Returns and Flows Experienced by Juveniles



# LSJR Flow Objectives

## 2013 Delta Plan

“Without adequate water flow (the right mix of timing and amount), we cannot expect fisheries to recover, no matter how well we deal with the range of other stressors.”

**Delta Stewardship Council**

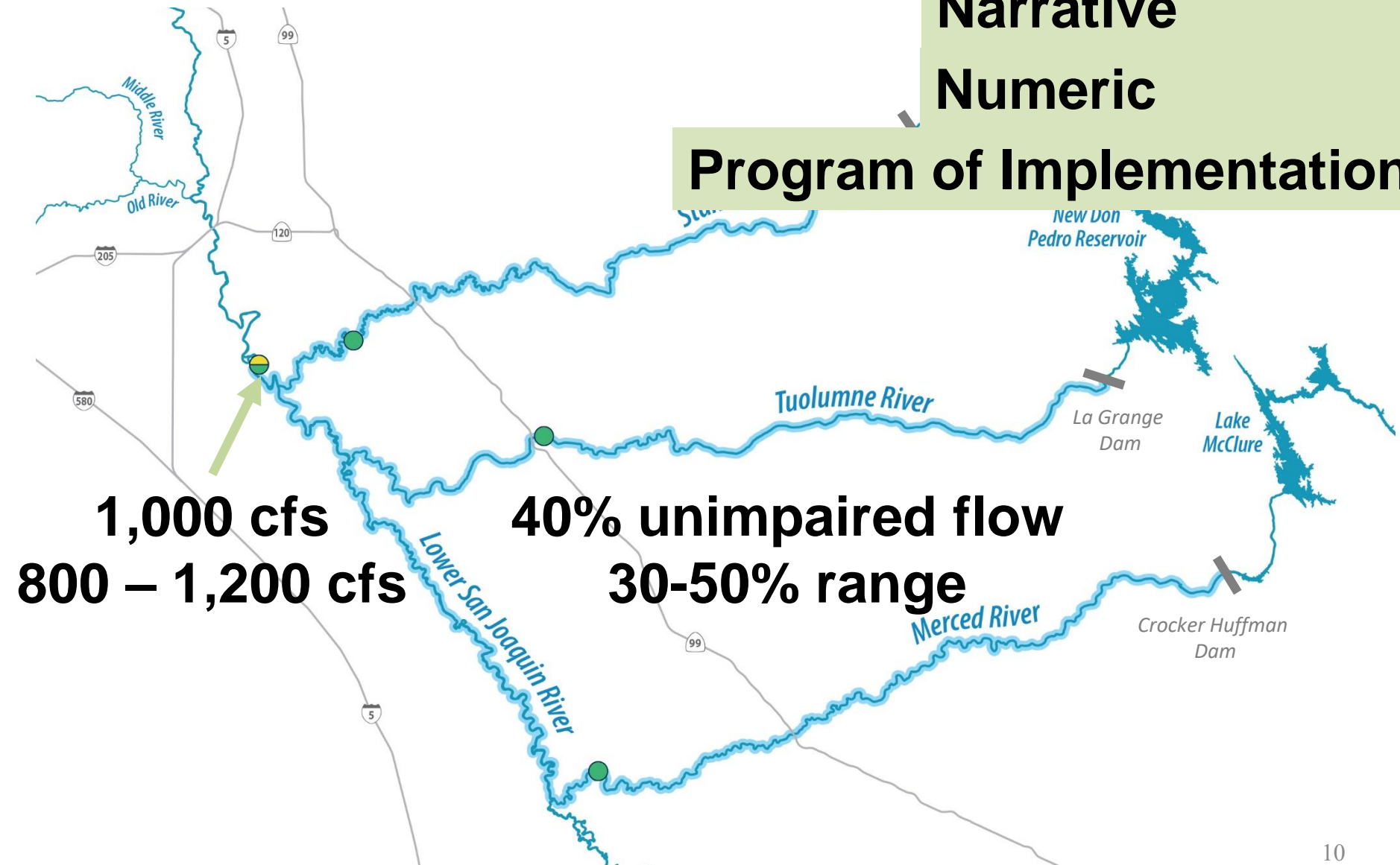
# LSJR Plan Amendments

## Flow Objectives

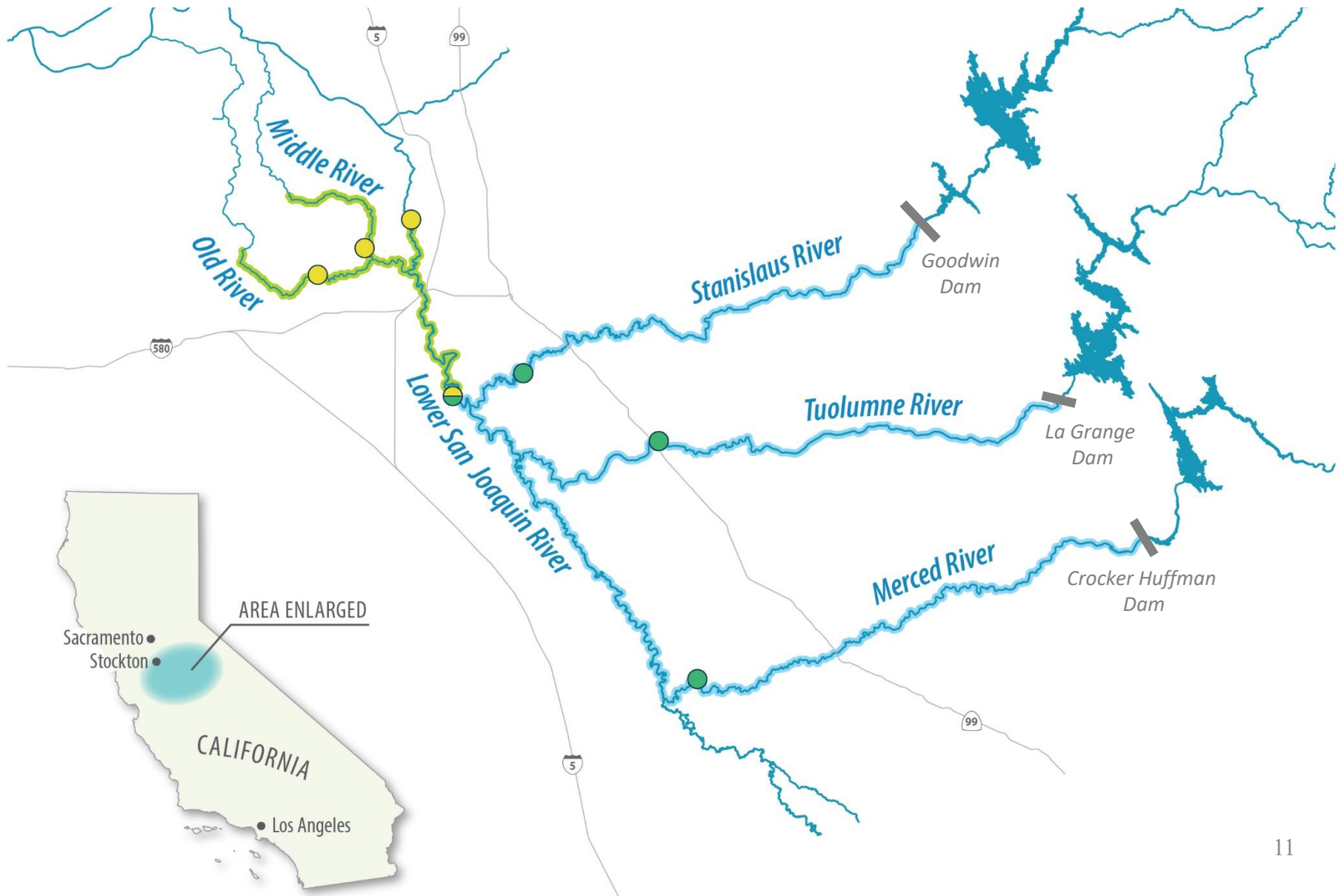
Narrative

Numeric

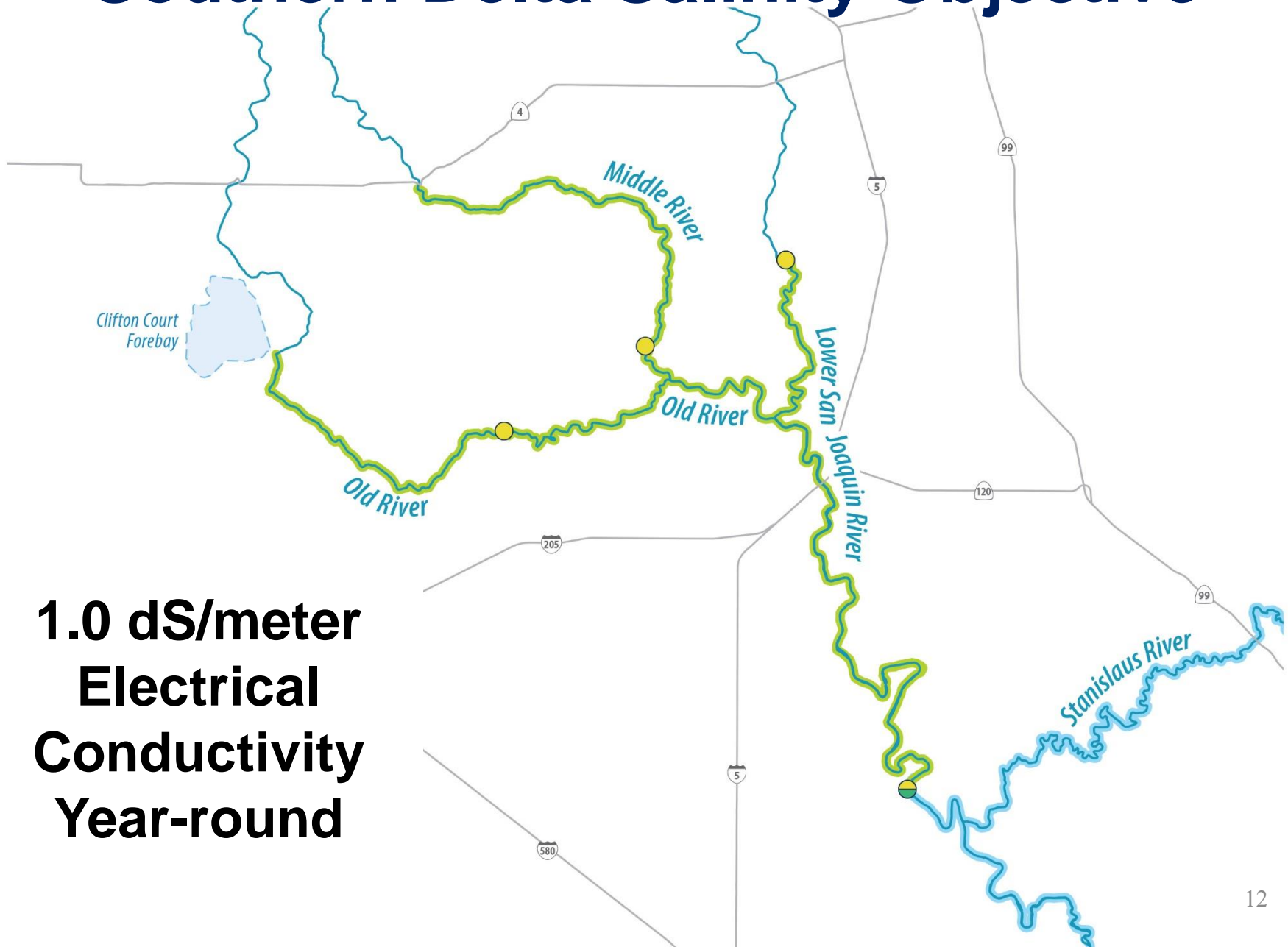
Program of Implementation



# Proposed Bay-Delta Plan Amendments



# Southern Delta Salinity Objective



# Substitute Environmental Document

- Amendments to the Water Quality Control Plan
- Program-level analysis
- Project-level analysis may be appropriate for implementation
- Complies with CEQA and Porter-Cologne Water Quality Control Act

# Public Comments

**2012**

## **Draft SED**

Dec. 31, 2012– Mar. 29, 2013  
SED & Proposed Plan Amendments

**2016**

## **Draft Recirculated SED**

Sept. 15, 2016 – Mar. 17, 2017  
SED & Proposed Plan Amendments

**2018**

## **Modifications to Proposed Plan Amendments**

Jul. 6, 2018 – Jul. 27, 2018

# Public Comments

Draft Recirculated SED

**More than 180 Days**

Sept. 15, 2016 – Mar. 17, 2017

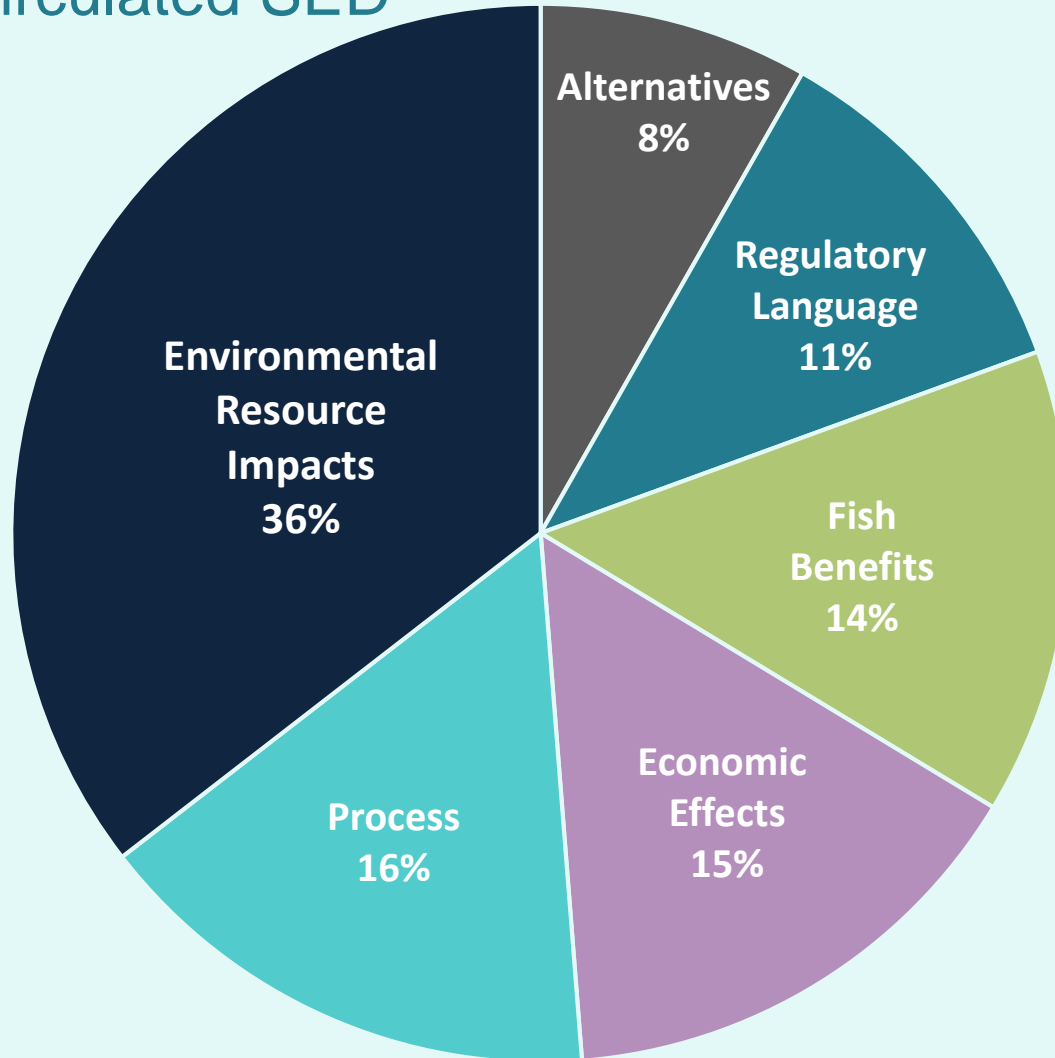
**3,100 Unique Letters**

**10,500 Unique Comments**

**33,150 Total Letters**

# Comment Categories

Draft Recirculated SED



# Comment Response

Draft Recirculated SED

## 22 Master Responses

Comprehensive responses

Repeated comment themes

## Response Tables

Respond to each unique comment

Refer to master responses when appropriate

# Changes to SED



## Clarifications

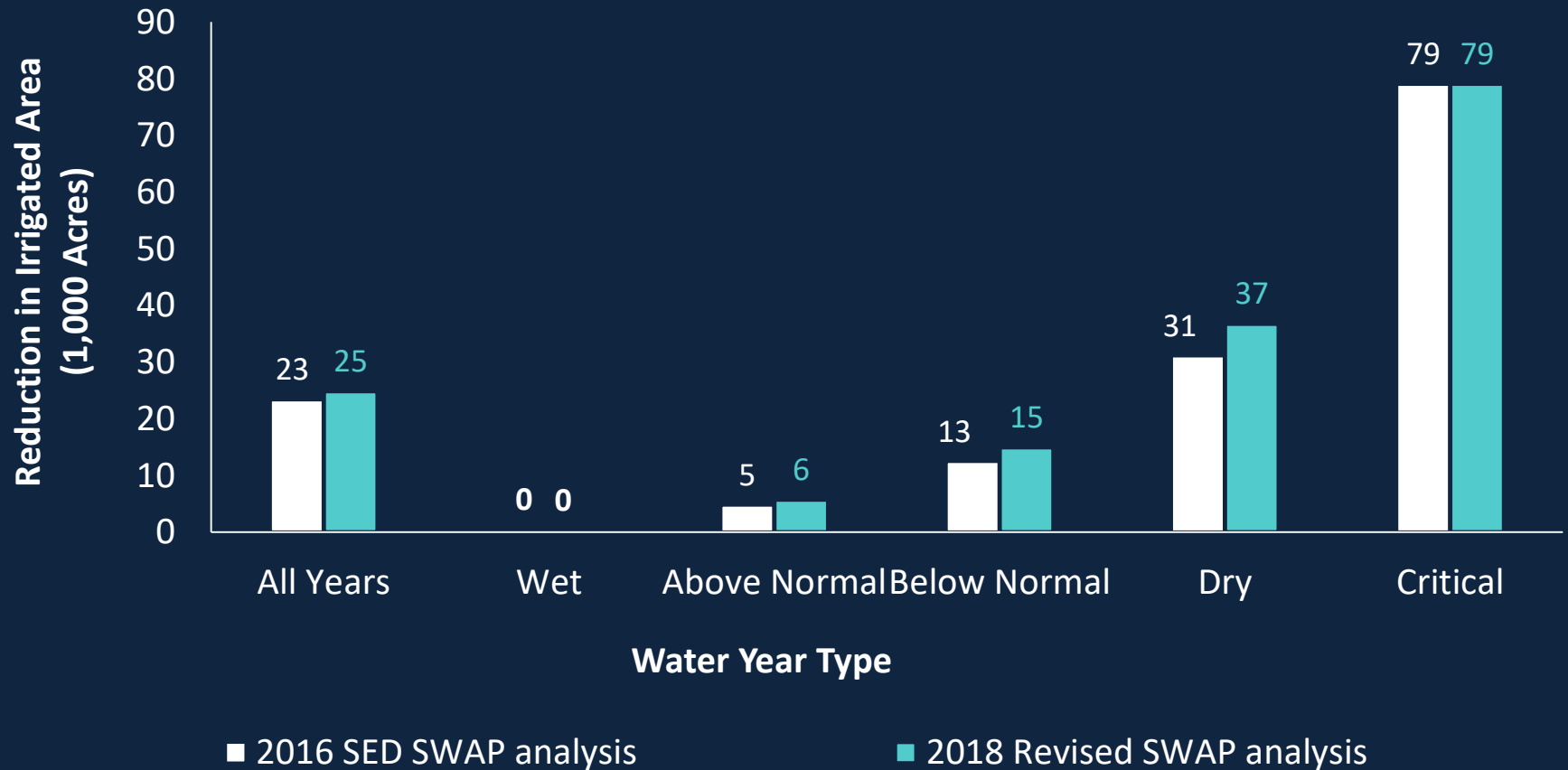


## Refine Agricultural Economic Analysis

- Deficit irrigation
- Corn silage
- Total irrigated acreage
- Crop prices & production costs
- Groundwater use

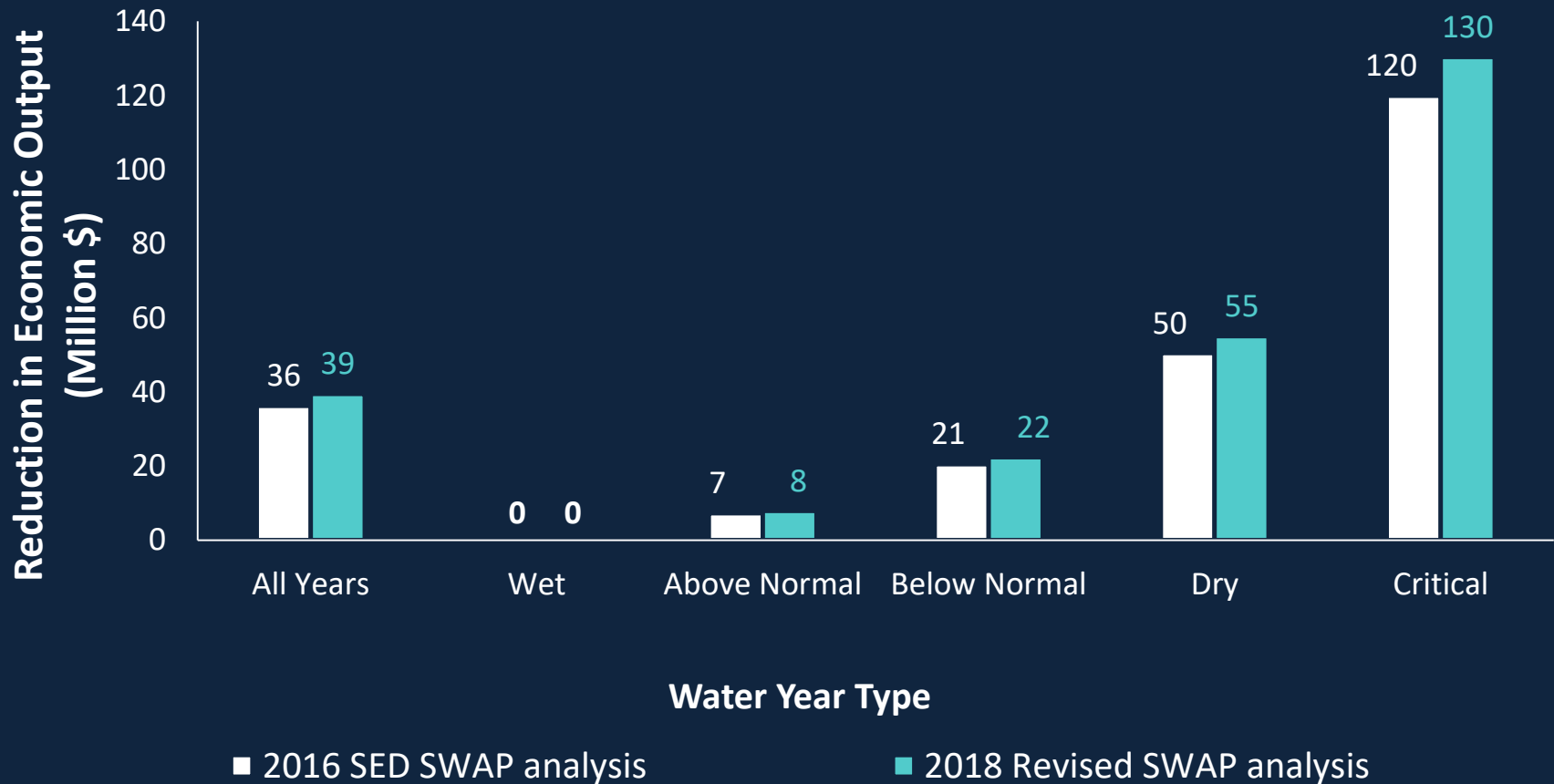
# Agricultural Economic Analysis

Comparison of 2016 SED and 2018 Revised SWAP Change in **IRRIGATED AREA**



# Agricultural Economic Analysis

Comparison of 2016 SED and 2018 Revised SWAP Change in **CROP REVENUE**



# Agricultural Economic Analysis

## Regional Economic Output

- 2016 SED - \$64 million/year loss
- Reviewed comments
- Refined Statewide Agricultural Production (SWAP) simulation
- 2018 SED - \$69 million/year

# Changes to Amendments



## Flow Objectives

- Starting point of 40% unimpaired flow
  - Repeated from program of implementation
- Avoid significant adverse effects
  - Repeated from program of implementation
- Clarified baseflow
- Added compliance calculation

# Changes to Amendments



## Program of Implementation

- Removed a sentence regarding water held for release after June
- Biological goals may include temperature targets
- 5-year review of San Joaquin River Monitoring and Evaluation Program
- Annual operations reports in a public meeting

# Changes to Amendments



## Southern Delta Salinity

- Due date for Comprehensive Operations Plan
- Effects of POTW discharges on Delta salinity
- Feasibility of reverse osmosis technology

# Primary Benefits



**Restore  
Flows**

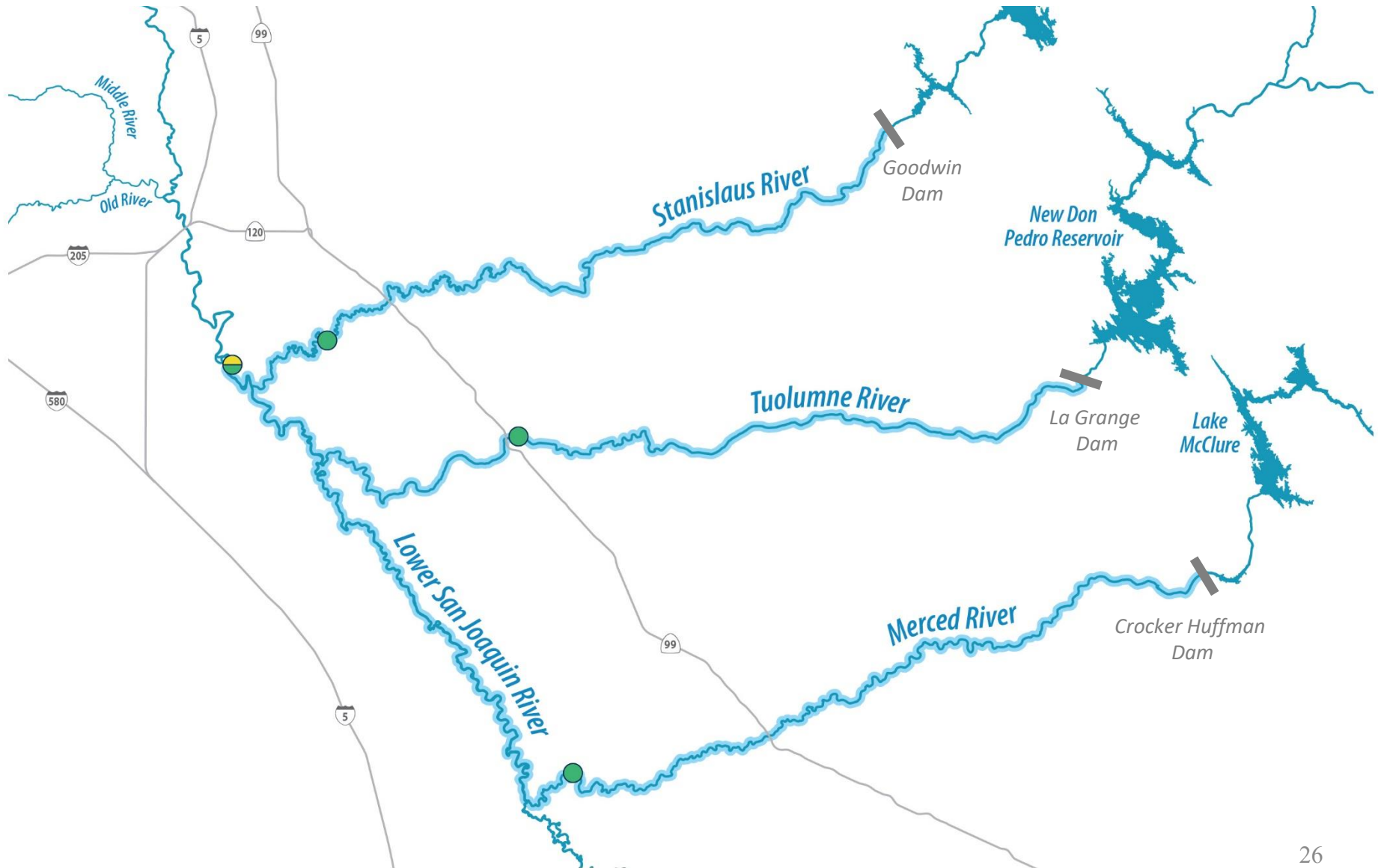


**Improve  
Temperature**



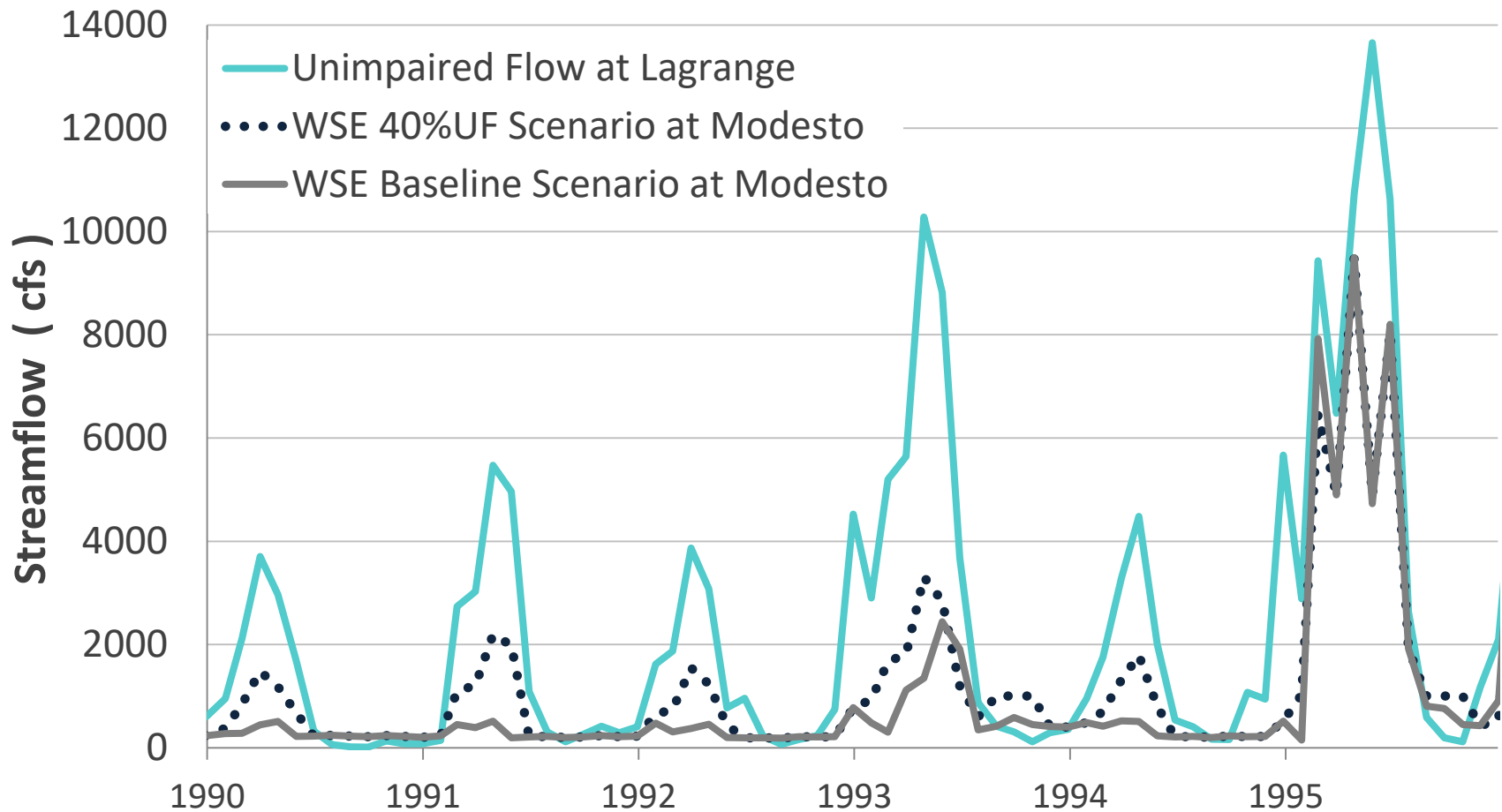
**Increase  
Floodplain  
Inundation**

# LSJR Plan Amendments

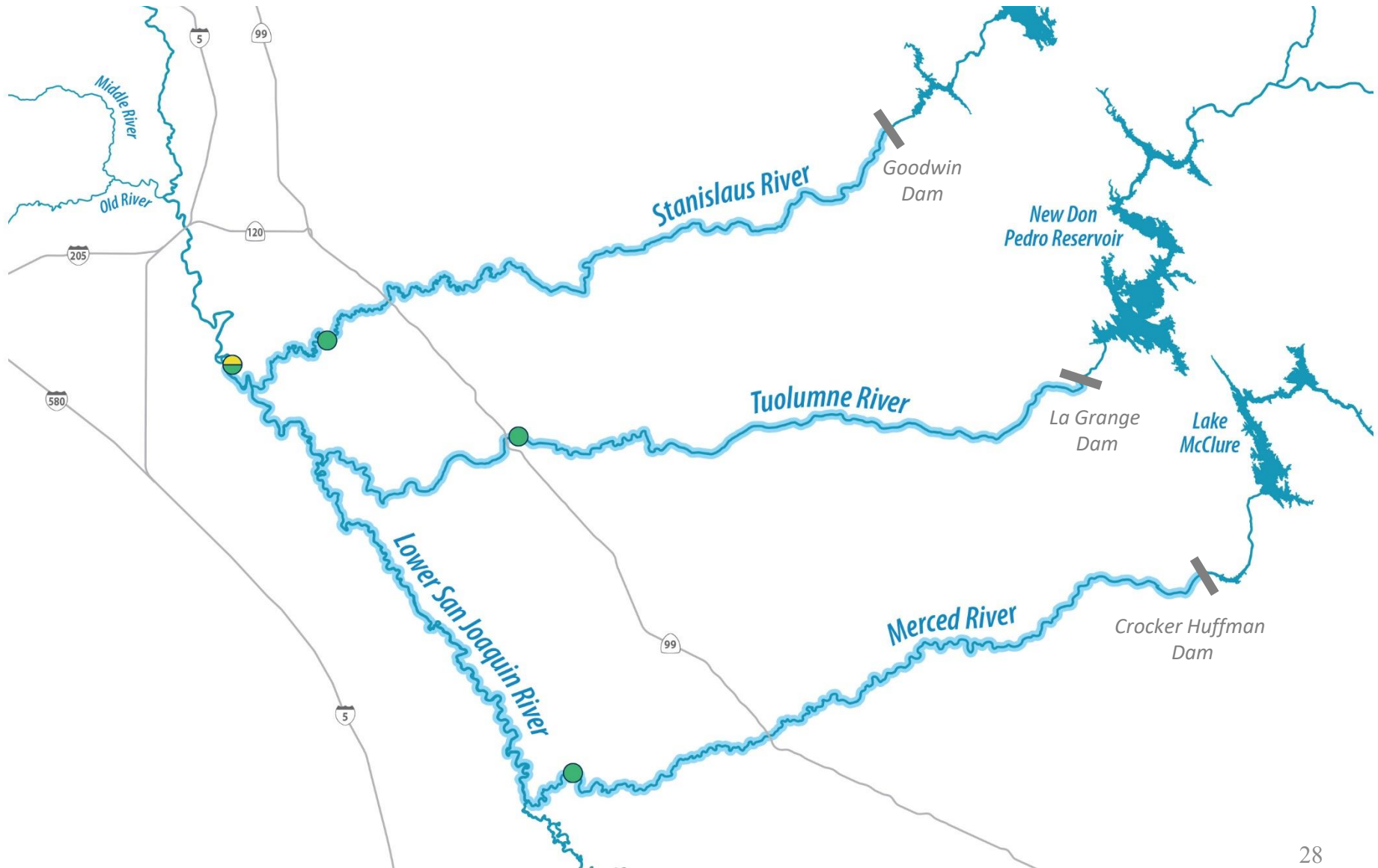




# Tuolumne River (1990-1995)



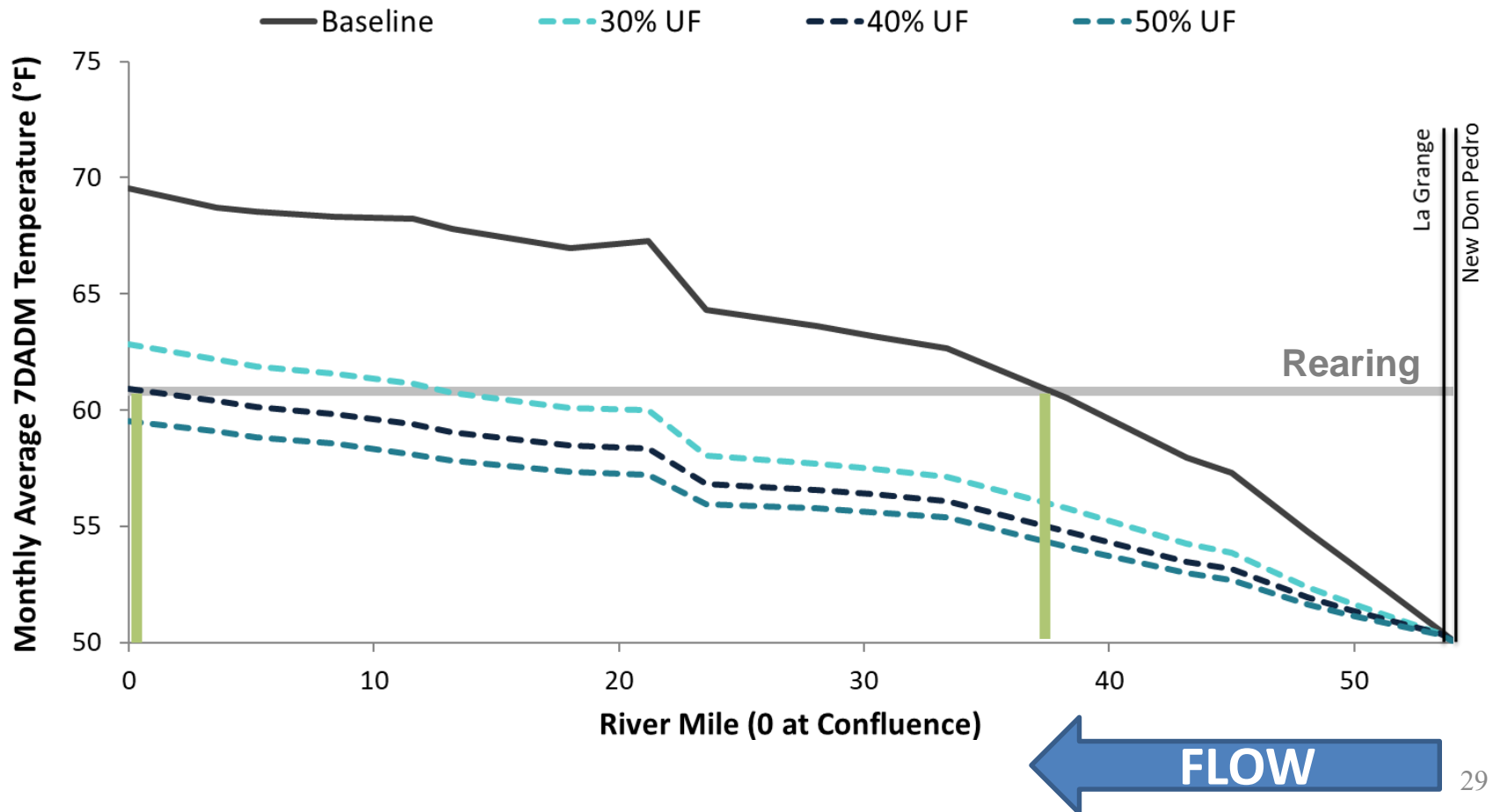
# LSJR Plan Amendments





# Tuolumne: April 1990

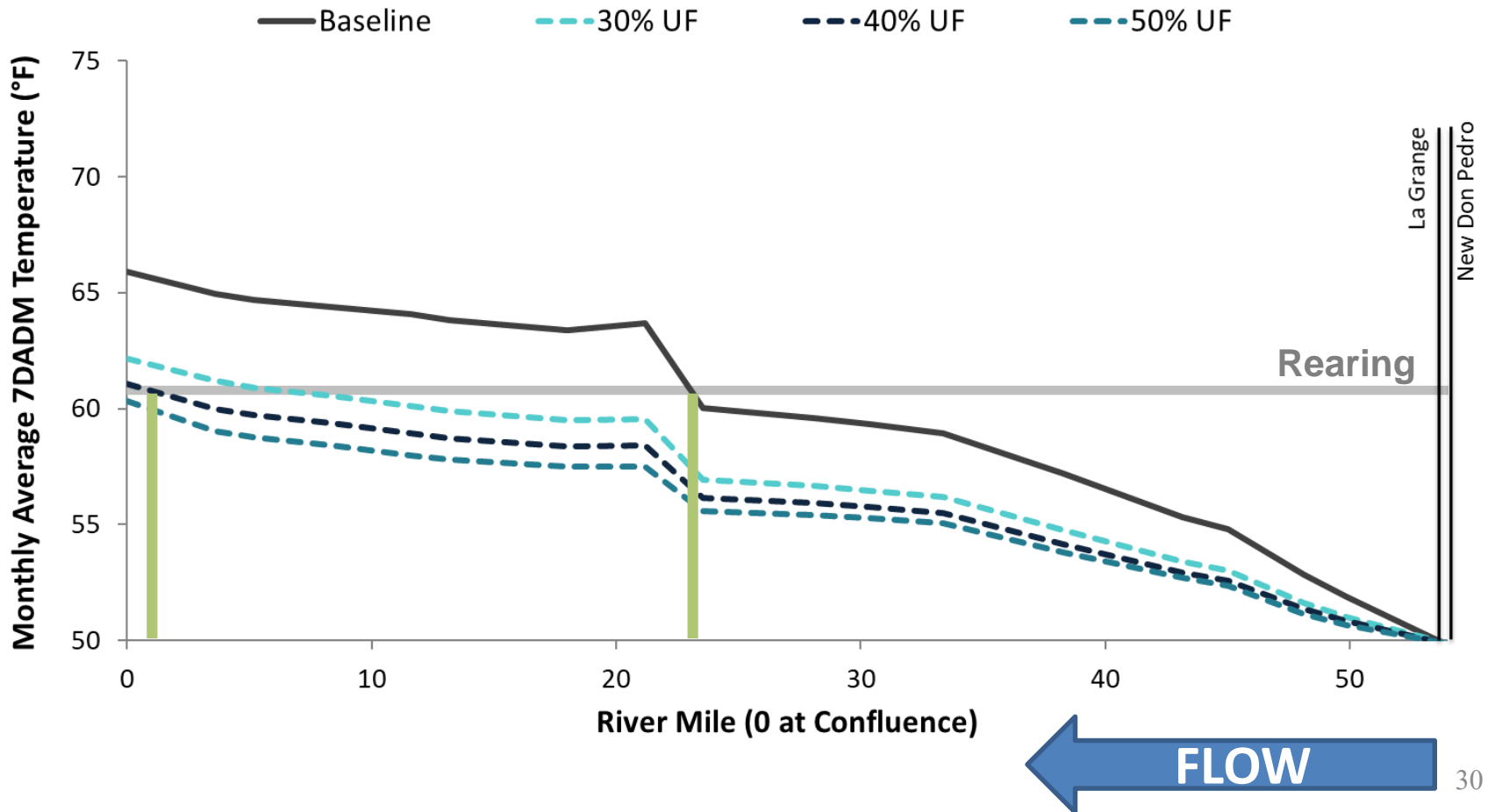
## Monthly Average 7DADM Temperature



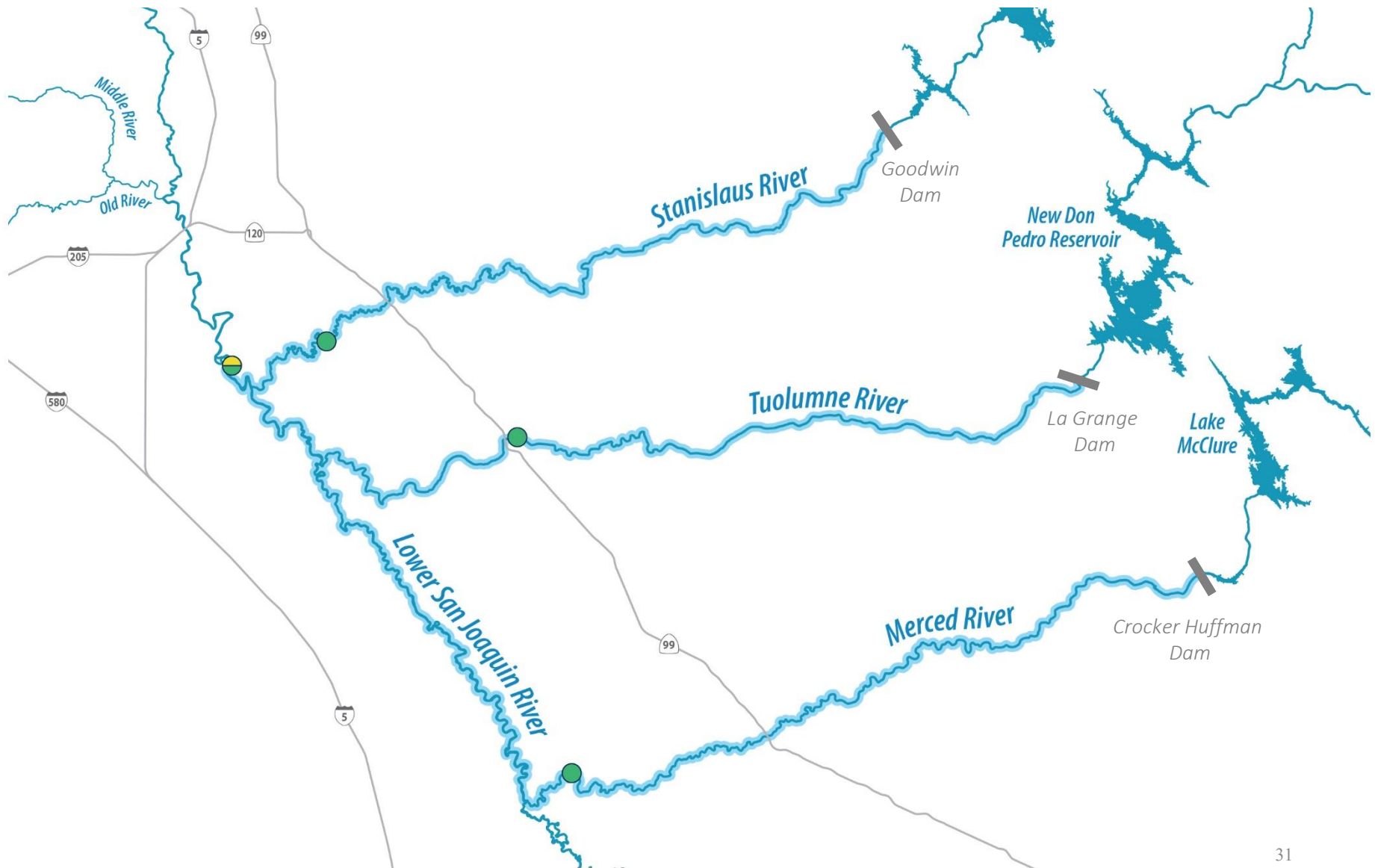


# Tuolumne: May 1970-2003

## All Years Averaged



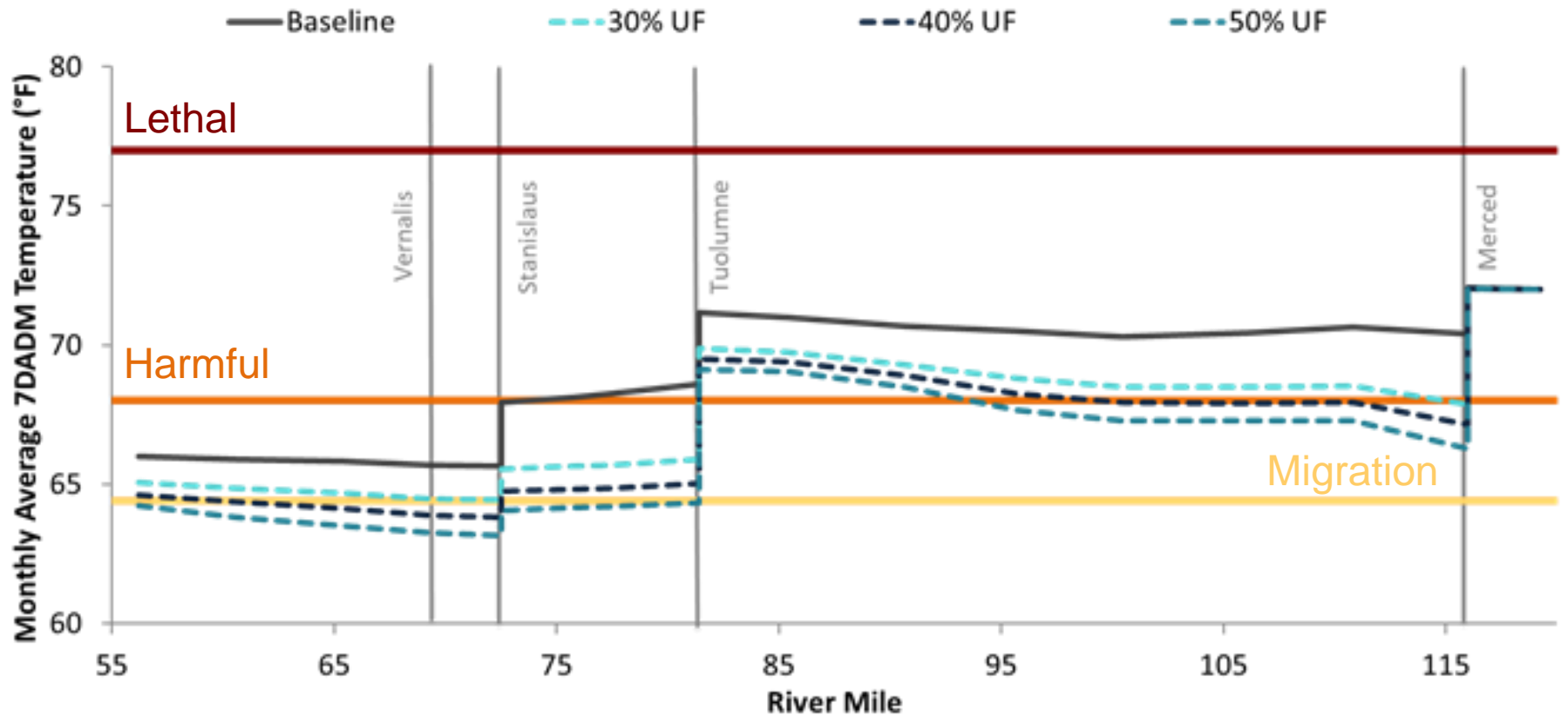
# LSJR Plan Amendments





# San Joaquin: May 1970-2003

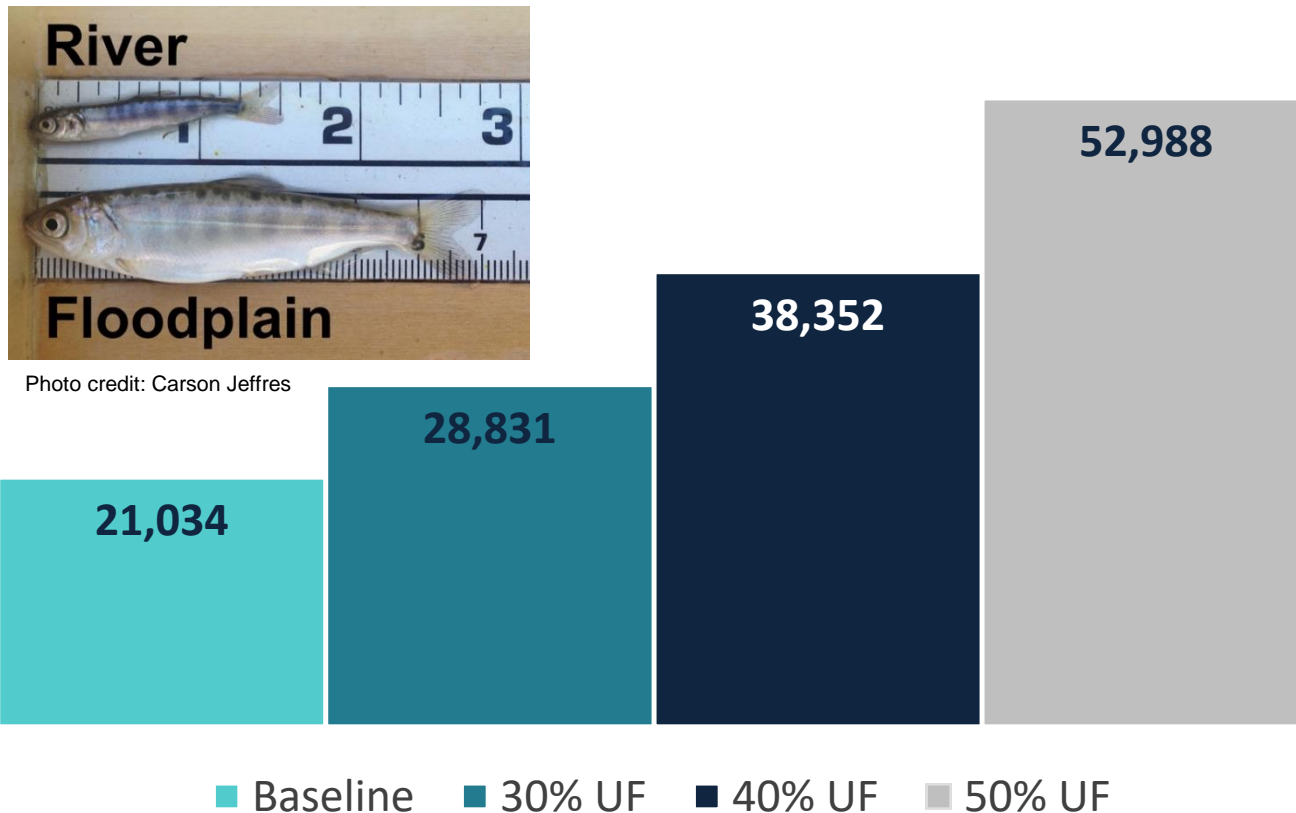
## All Years Averaged





# Average Floodplain Inundation

## Acre\*Days for Tributaries, April – June



# Primary Impacts



**Water  
Supply**



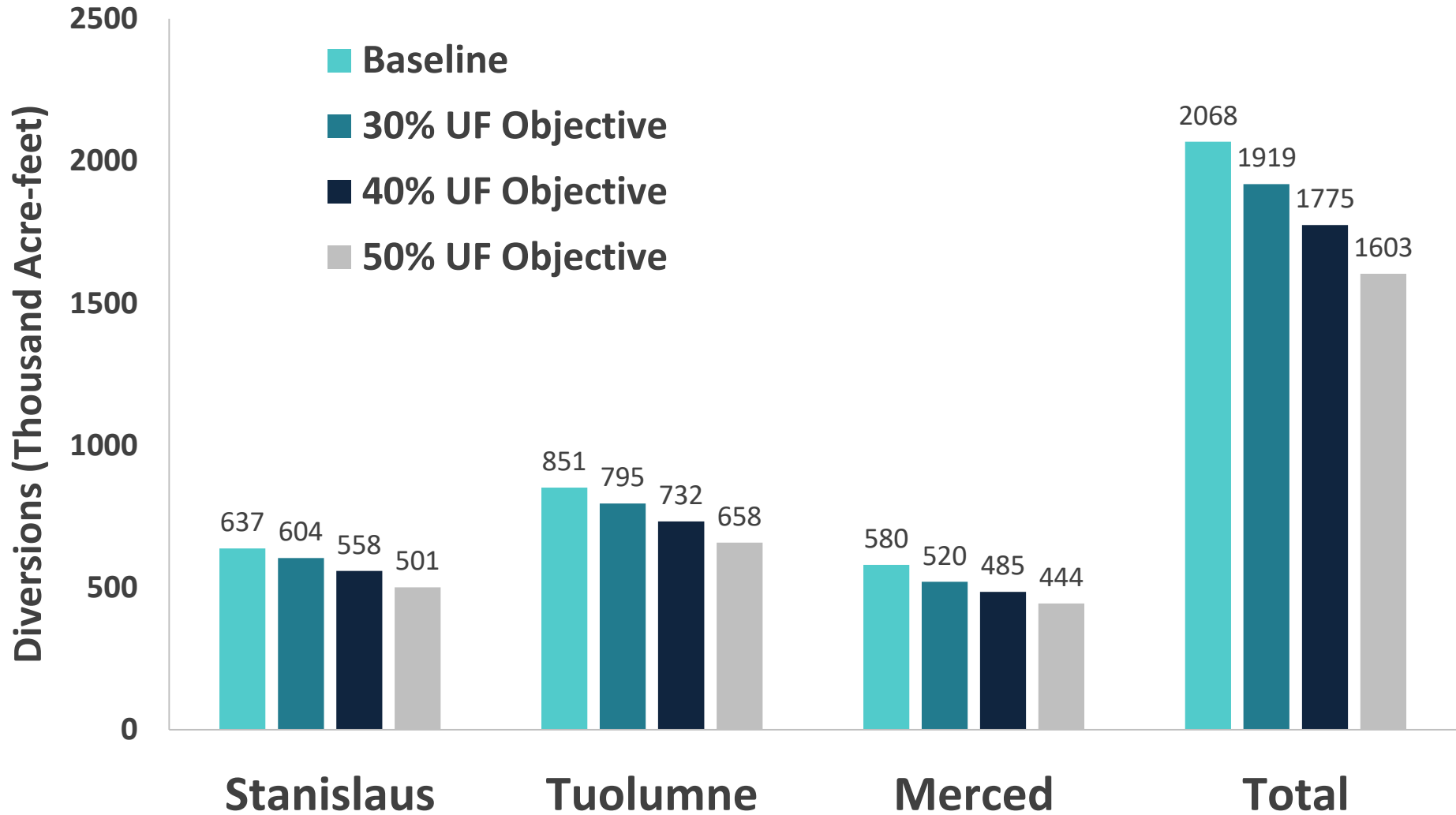
**Groundwater**



**Agriculture**

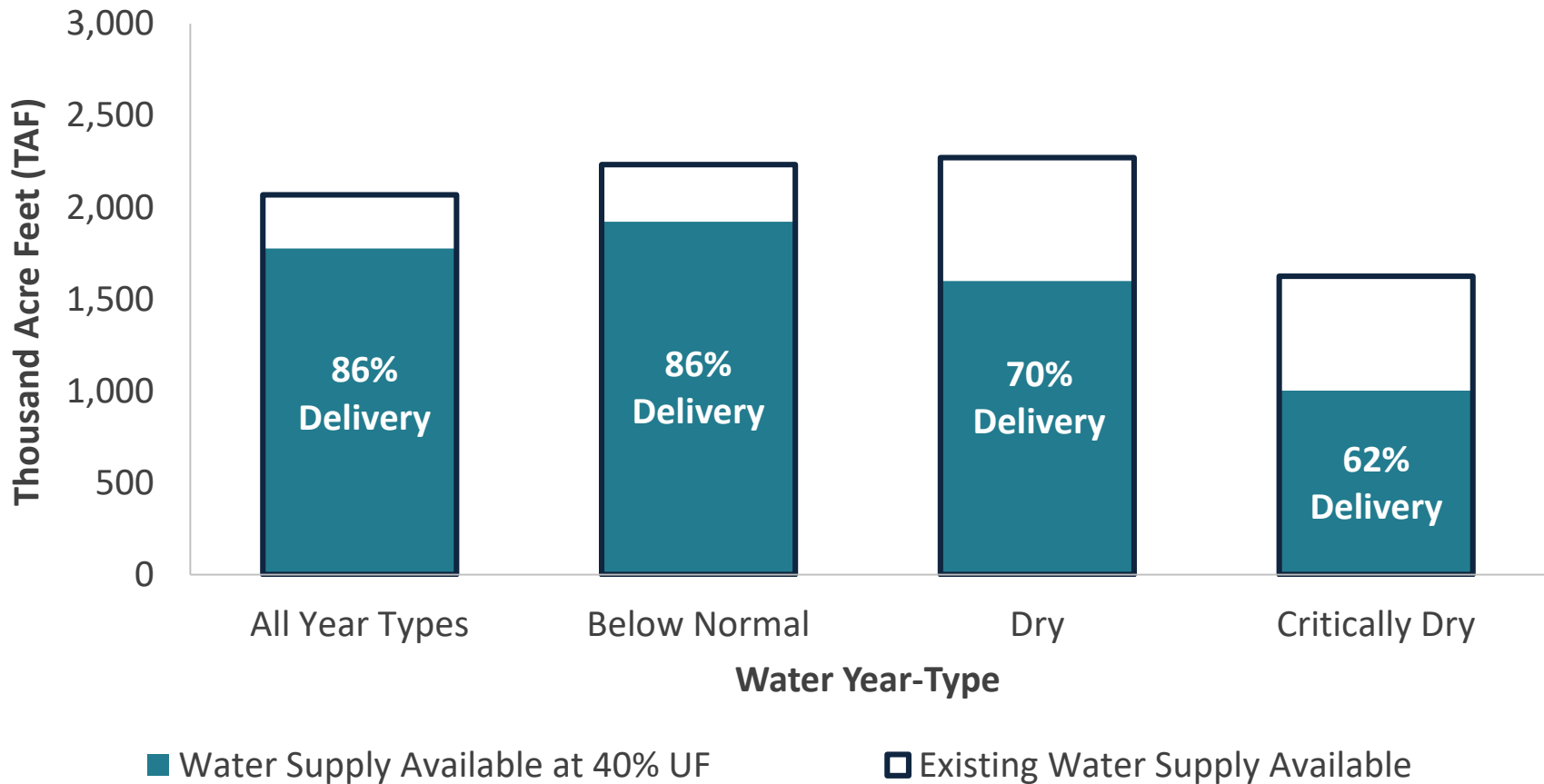


# Average Annual Surface Water Deliveries





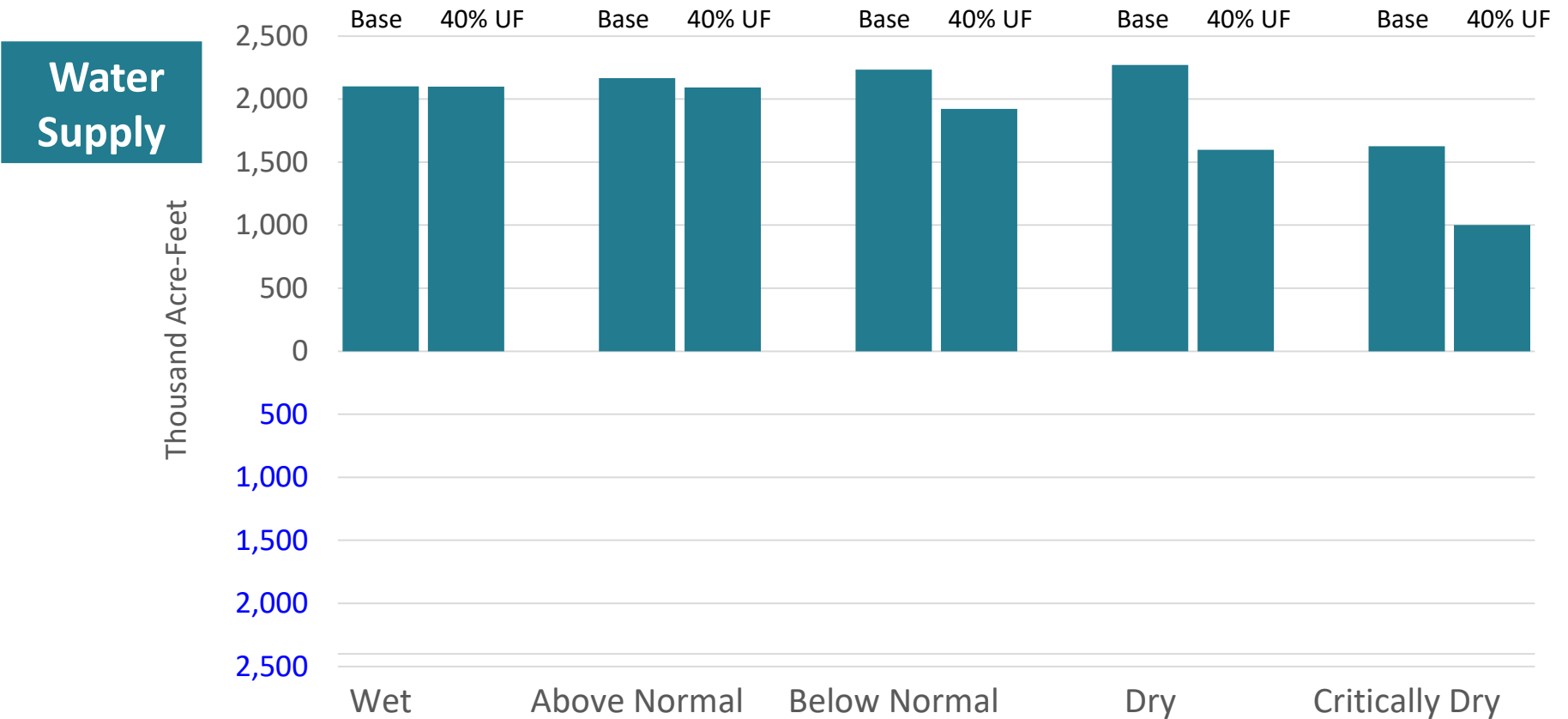
## Change in Surface Water Delivery by Water Year Type (40% UF Objective)



**Greatest effect on diversions for human use would be in driest years;  
almost no effect on diversions for human use in wet years.**

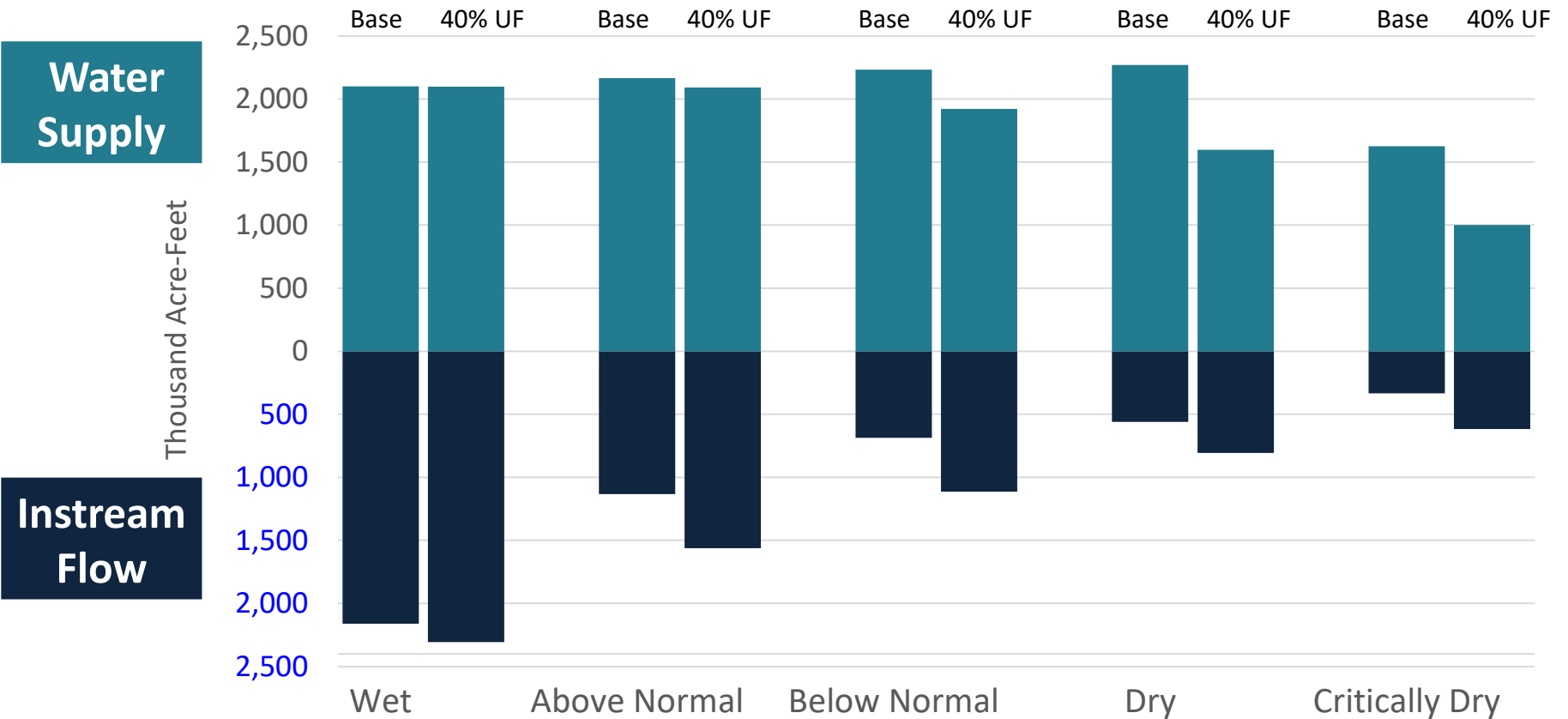


# Annual Water Supply & Feb-June Stream Flow Baseline vs. 40% UF



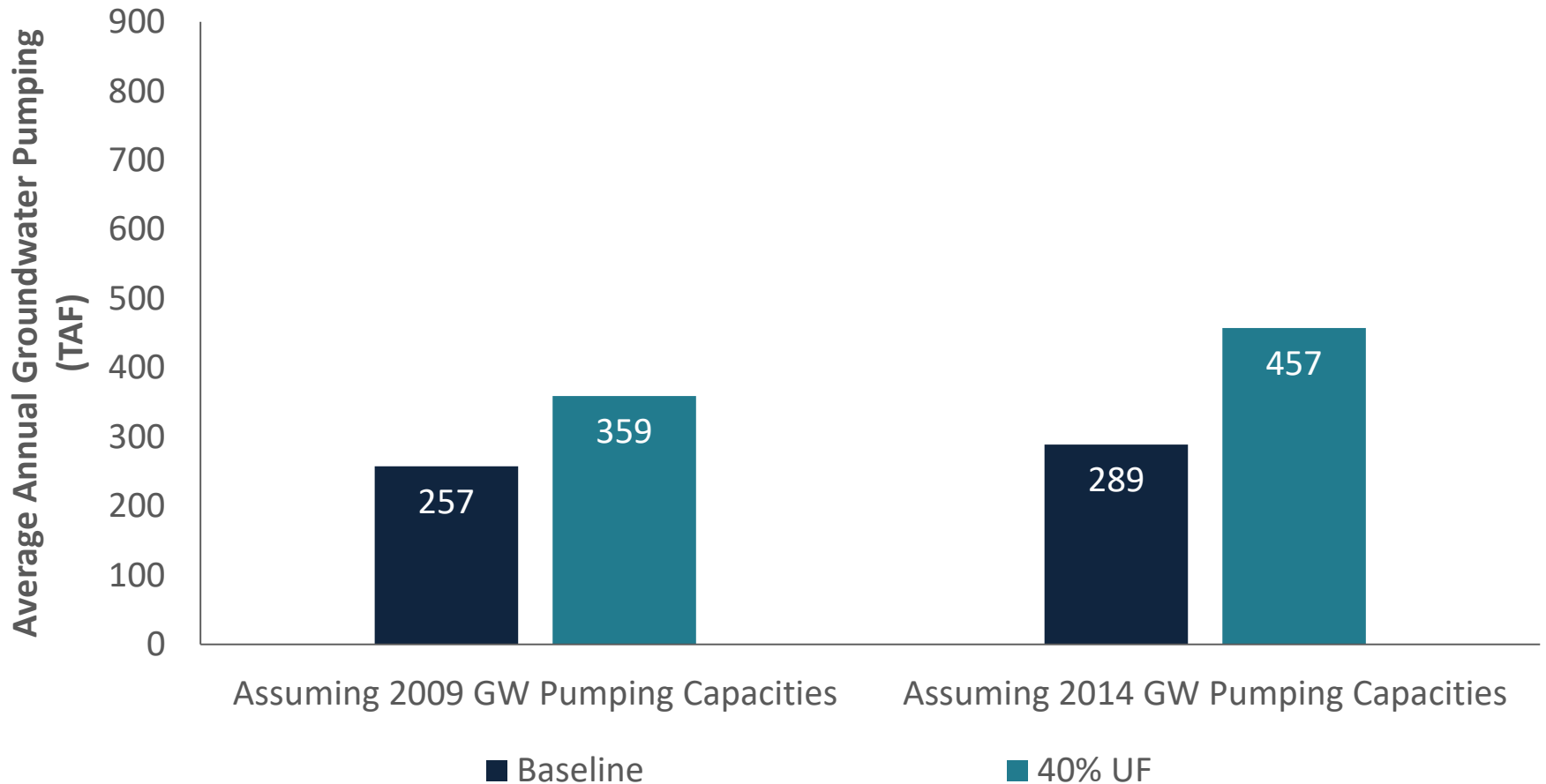


# Annual Water Supply & Feb-June Stream Flow Baseline vs. 40% UF





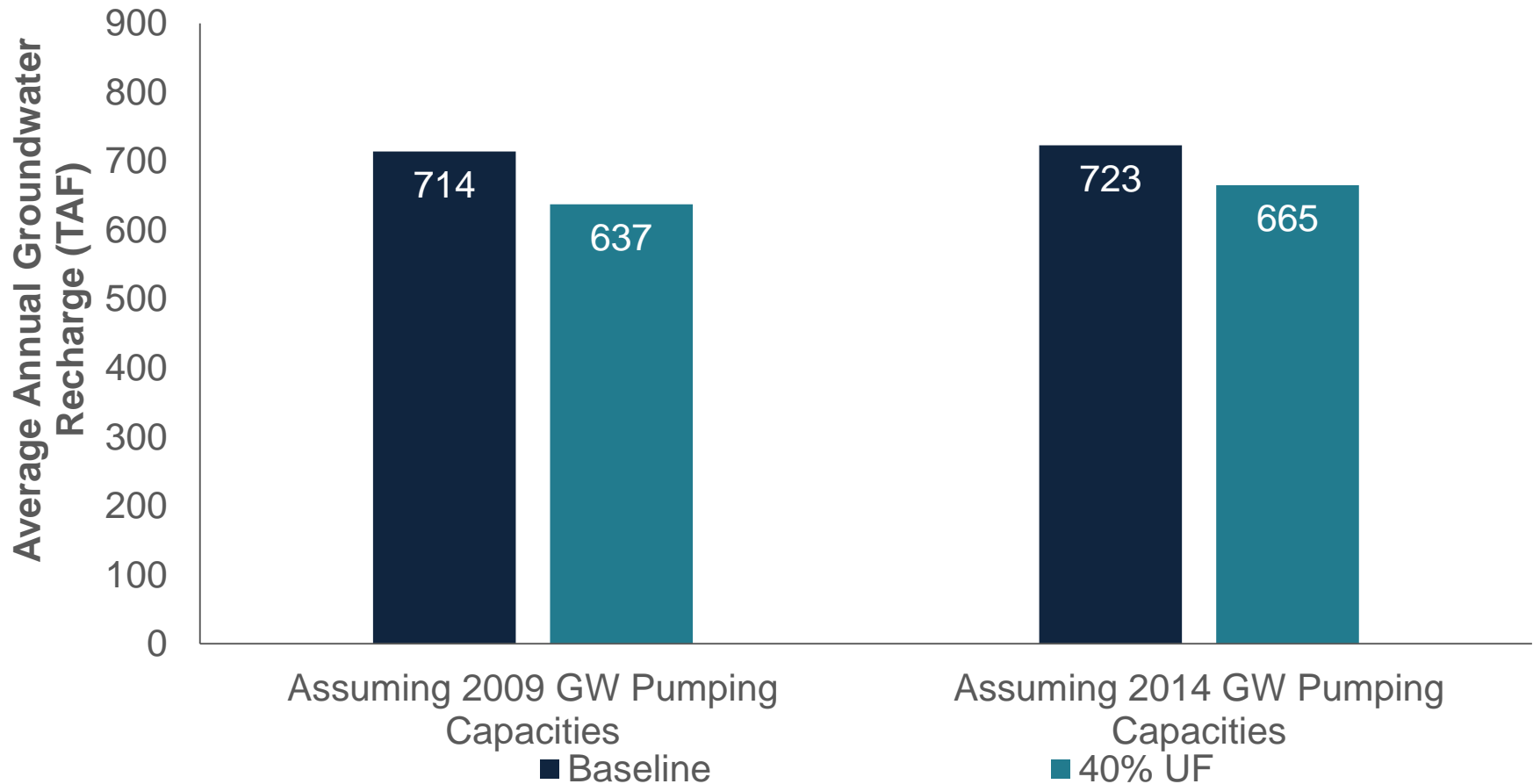
## Average Annual Effects of 40% UF Objective on **GROUNDWATER (GW) PUMPING**



Maximum GW pumping capacity over all districts is 626 TAF/y in 2009 & 903 TAF/y in 2014  
using best available information.

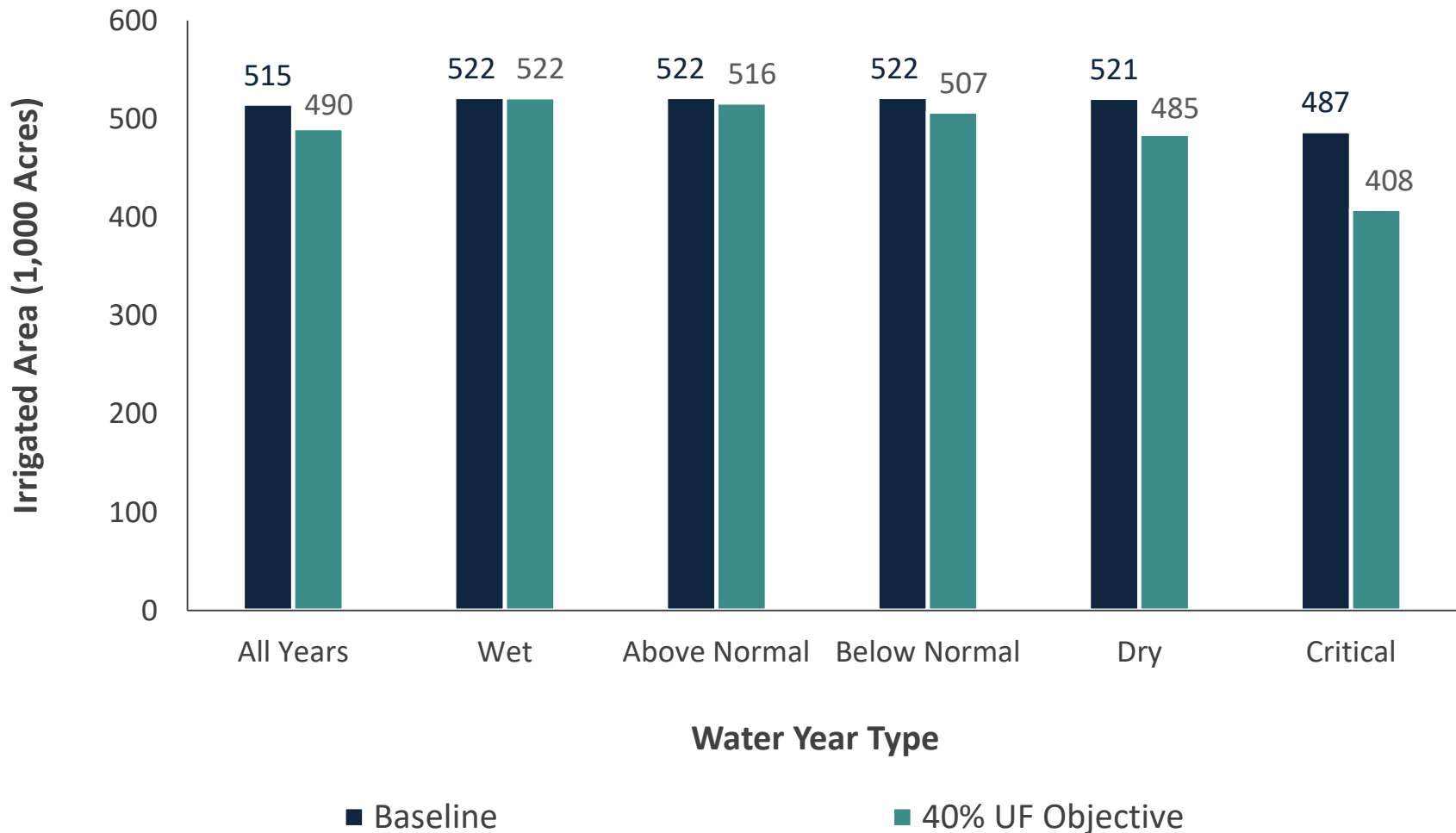


## Average Annual Effects of 40% UF Objective on GROUNDWATER (GW) RECHARGE





## Average Annual Effects of 40% UF Objective on IRRIGATED ACREAGE



# Economic Consideration



**Crop  
Revenue**



**Regional  
Economic  
Output**

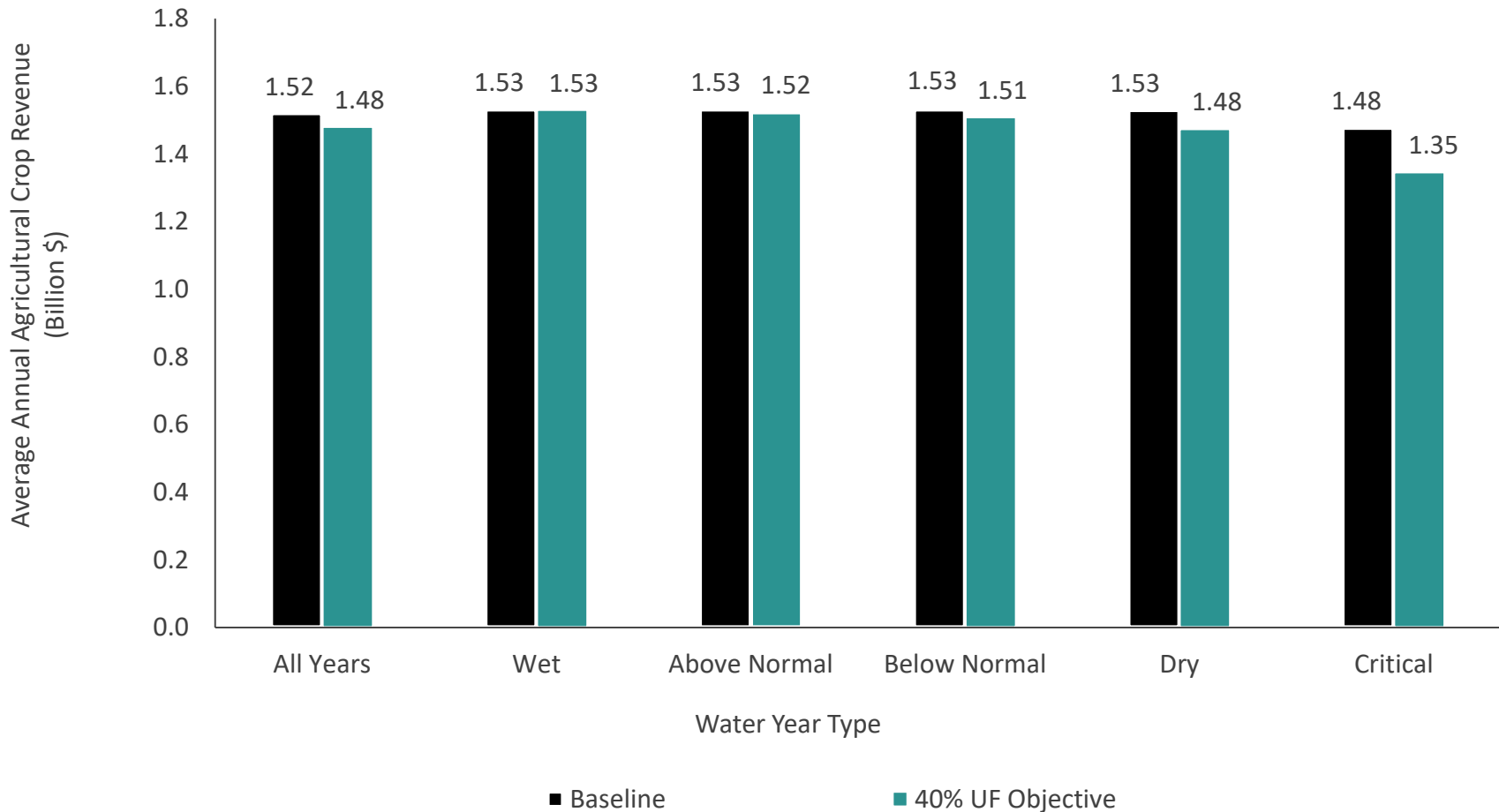
# Agricultural Economic Analysis

## Considered Commenters' Analyses

- Higher economic effect estimates
  - \$400 million/year - \$1.6 billion/year
  - \$128 million/year
  - \$600 million/year - \$3.2 billion/year
- Different assumptions
  - No strategic groundwater pumping
  - No ability to substitute livestock feed
  - Inconsistent with observed behavior
  - Amplified effects in regional analysis



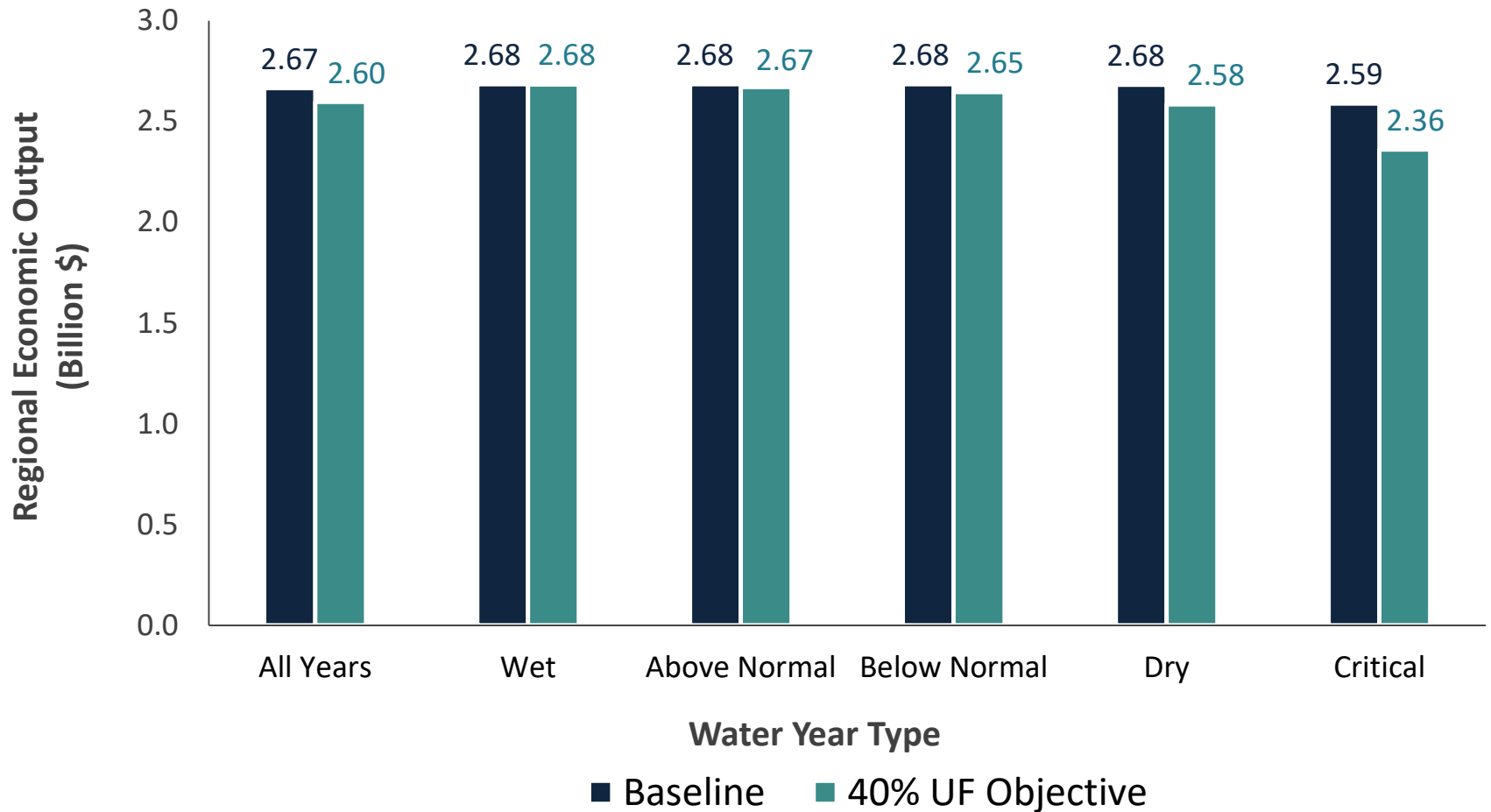
# Average Annual Effects of 40% UF Objective on **CROP REVENUE**



Note: Crop revenue is the farm gate value of all production from irrigation districts that receive surface water from the Merced, Tuolumne, & Stanislaus Rivers.



## Average Annual Effects of 40% UF Objective on REGIONAL ECONOMIC OUTPUT



Note: Regional economic output is the measure of change in all economic activity (sales) in Merced, Stanislaus, and San Joaquin counties, resulting from a change in irrigated crop revenue.

# Public Comments

**2012**

## **Draft SED**

Dec. 31, 2012– Mar. 29, 2013  
SED & Proposed Plan Amendments

**2016**

## **Draft Recirculated SED**

Sept. 15, 2016 – Mar. 17, 2017  
SED & Proposed Plan Amendments

**2018**

## **Modifications to Proposed Plan Amendments**

Jul. 6, 2018 – Jul. 27, 2018

# Comment Response

## Modifications to the plan amendments

Public comment was solicited on the modified plan amendments in the July 6, 2018 Notice

The comment period was 21 days

- 2013 comment period resulted in extensive revisions
- Six month comment period provided in 2016 – 2017 on revised plan amendments
- Recent modifications were limited in scope
- Plan amendment proposal did not substantially change

Public review period is more than 45 days

# Comment Response

## Modifications to the plan amendments

### **Comment Topic 1: *Modified language in the proposed flow objectives is a significant new change to the plan amendments***

- *“Maintain 40% of unimpaired flow, within an adaptive range between 30-50%,”*
- *“Flows provided to meet these numeric objectives shall be managed to avoid causing significant adverse impacts to fish and wildlife beneficial uses at other times of the year”*

**Response:** The program of implementation already included the express language that is now repeated in the objective. The 40% unimpaired flow starting point and requirement to avoid adverse effects is the program of implementation and was available for comment in the 2016 proposed plan amendment. Repeating these requirements in the objective does not substantively change the LSJR plan amendments.

# Comment Response

## Modifications to the plan amendments

**Comment Topic 2: *Modified language in the proposed baseflow objective is a significant new change to the plan amendments.***

- *A lowering of the flow requirement*
- *Requires Use Attainability Analysis*

**Response:** The baseflow language was modified to clearly state that flows at all times during February through June must be greater than 1,000 cfs within an adaptive range of 800 – 1,200 cfs. The flow values were not modified. The modified language does not substantially alter the baseflow objective. A use attainability analysis is used to support the removal of beneficial uses that support the fishable and swimmable goals of the Clean Water Act. This is not relevant to the plan amendment proposal as it does not include removal of beneficial uses.

# Comment Response

## Modifications to the plan amendments

**Comment Topic 3:** *Multiple comments described concerns about the compliance calculation for the proposed flow objective. Concerns were about accuracy of full natural flow gage station data, forecasting, and identification of flow gage location*

**Response:** These comments were addressed in the proposed Final SED response to comments, Master Responses 2.1 and 2.2. Concerns with accuracy are addressed with a longer averaging period and the program of implementation requirement to develop information to monitor and evaluate compliance.

The plan amendments recognize that an annual operation plan is based on a forecast from the best available information and may not accurately reflect actual conditions that occur during the February–June time period. As a result, an annual operations plan is required to include a range of actions that will work under a reasonable range of hydrologic conditions and must identify how adjustments will be made as updated information becomes available.

The full natural flow stations are identified in Master Response 3.2, see the map in Figure 3.2-2.

# Comment Response

## Modifications to the plan amendments

**Comment Topic 4:** *Language assigning responsibility for Implementing LSJR Flow Objectives to water rights holders will require water releases from reservoir storage and is not justified*

**Response:** Adoption of the plan amendments does not modify water rights and does not impose enforceable requirements on any entities. Enforceable obligations to implement the water quality objectives will be imposed in future proceedings involving the specific exercise of the State Water Board's water right or water quality authority. The State Water Board has authority to impose requirements on the diversion and use of water, including conditions on the diversion of water to storage.

# Comment Response

## Modifications to the plan amendments

**Comment Topic 5:** *The plan amendments do not have a technical or legal basis to require U.S. Bureau of Reclamation to meet a lower salinity level than the proposed objective*

**Response:** The actions of the Central Valley Project, operated by the U.S. Bureau of Reclamation (USBR), are the principal cause of salinity concentrations in the southern Delta at Vernalis. The plan amendments continue USBR's existing obligation to meet 0.7 dS/m EC on the LSJR at Vernalis in order to implement the salinity water quality objective for the interior southern Delta and to comply with antidegradation policies.

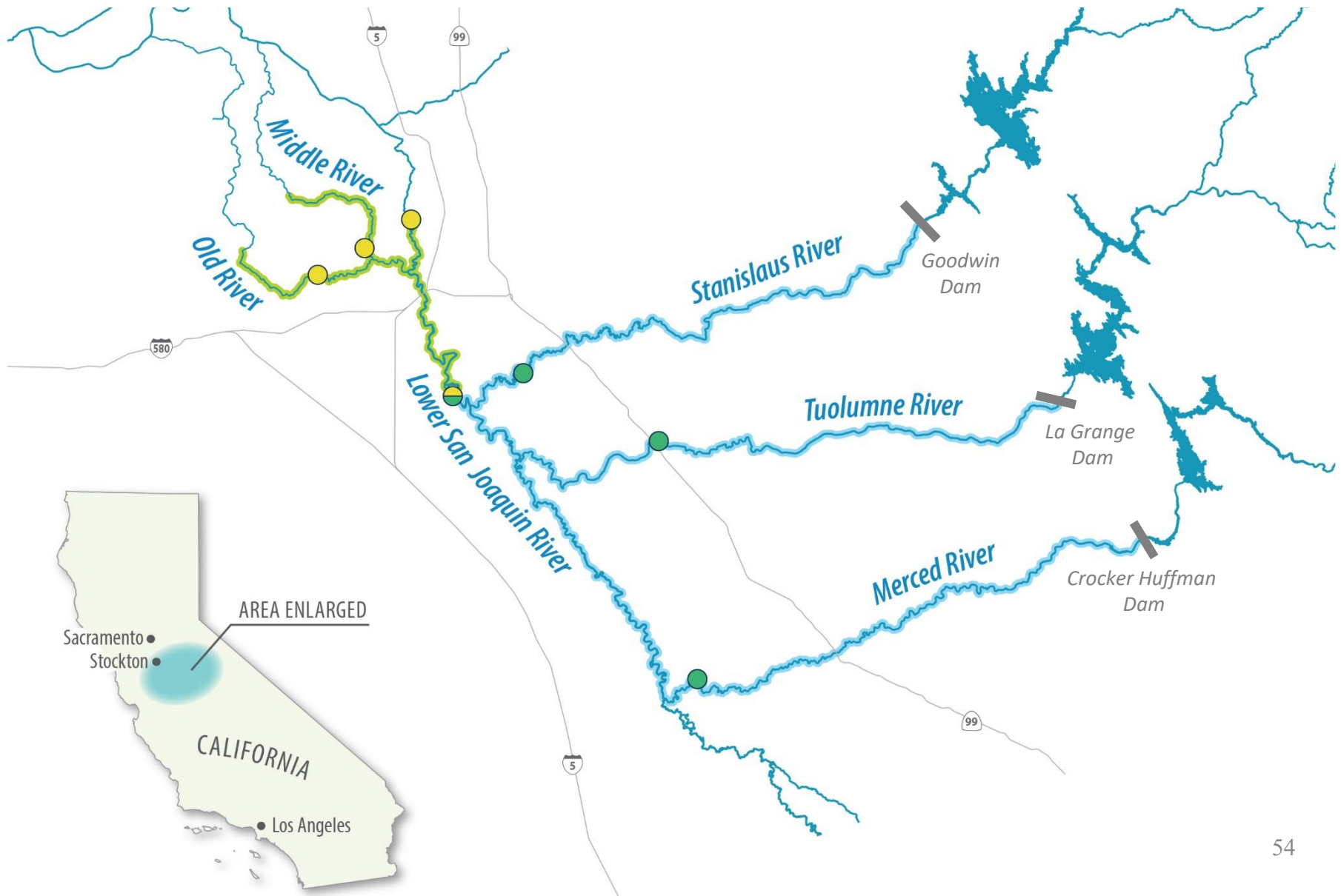
# Comment Response

## Modifications to the plan amendments

***Comment Topic 6:*** POTWs desire language in Bay-Delta Plan on how to determine future feasibility. The plan amendments state that reverse-osmosis treatment of POTW wastewater in the southern Delta is currently not feasible for controlling salinity and that where it is infeasible for POTWs to comply with numeric limits, they have to comply with best management practices. Where it becomes feasible to comply with numeric limits, POTWs must comply.

***Response:*** An exclusive list of factors to determine future feasibility is not possible. Future feasibility can be informed by the Board's current finding of infeasibility, but there may additional unknown factors that may be relevant in the future.

# Proposed Bay-Delta Plan Amendments



# Staff Recommendation

## Adopt Resolution:

- **Final SED**
- **Plan amendments into the Bay-Delta Plan**



## Next Steps

- Conclude Board Meeting
- Submit to Office of Administrative Law
- Submit to US EPA for review
- Notice of Determination

